

by a bolt, *b*, which is the spindle for the pulley *P*. A second bolt, *b'*, is provisory, as is also the surplus of the chain *O*. The chains are coupled by means of hooks and rings.

The manipulating gear is that part of the apparatus which serves to act on the controlling gear, by pulling on the transmitting chain, thus setting the brake in action or releasing it. It can be placed on the tender, or in the con-

a hand-wheel, *W W*, it can be raised or lowered. To make it possible to pull suddenly on the chain, however, when this may be required, the nut of the hand wheel is made in two parts, which can be separated instantly, and allow the spindle to fall down by itself, and thus apply the brake. This is accomplished by means of a handle, *N*, which the brakeman grasps with one hand, turning it suddenly to

principle and arrangement. It does not require any special apparatus to develop the motive power, but the accumulate d momentum of the running vehicle is used for braking ; it can be made continuous, or be arranged in groups of several cars, requiring then one manipulating gear and one brakeman for each group ; it can be made for each car separately ; it can be manipulated from the side (by means of

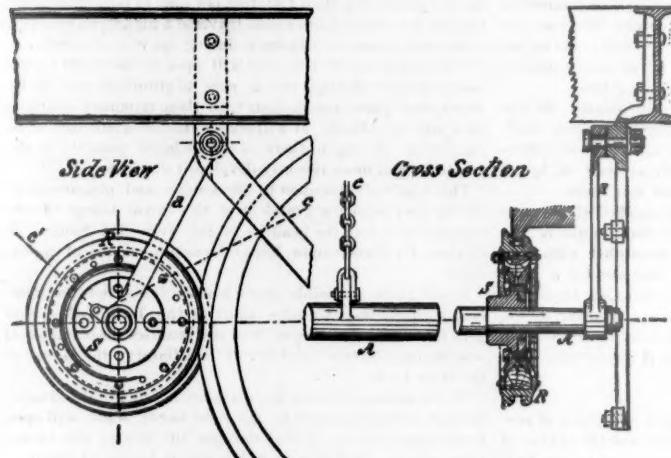


Fig. 1. FRICTION GEAR.

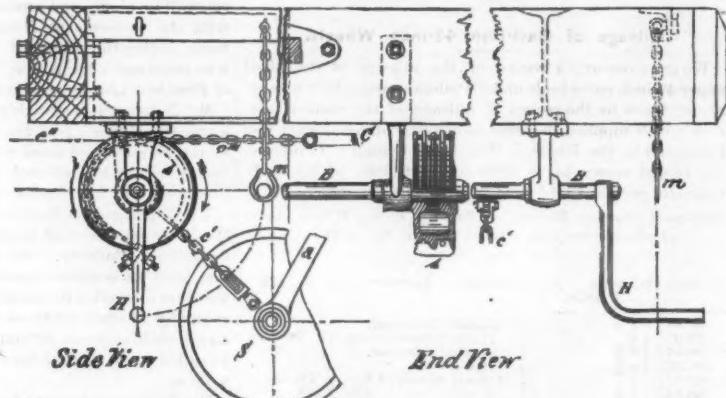


Fig. 2. CONTROLLING GEAR.

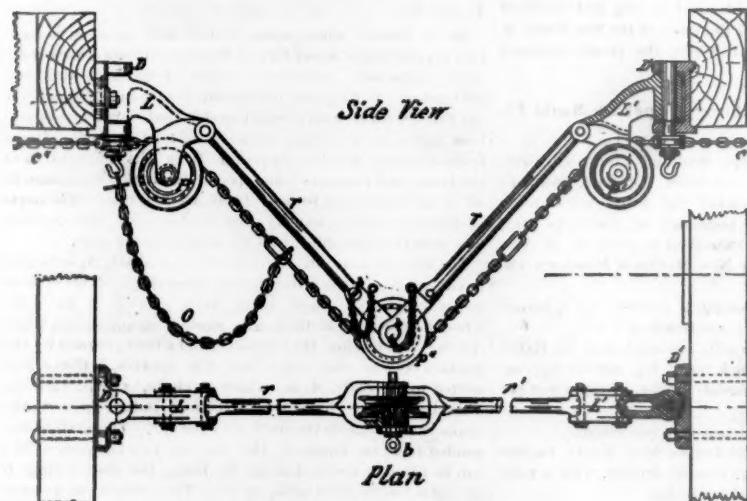


Fig. 3. COUPLING.

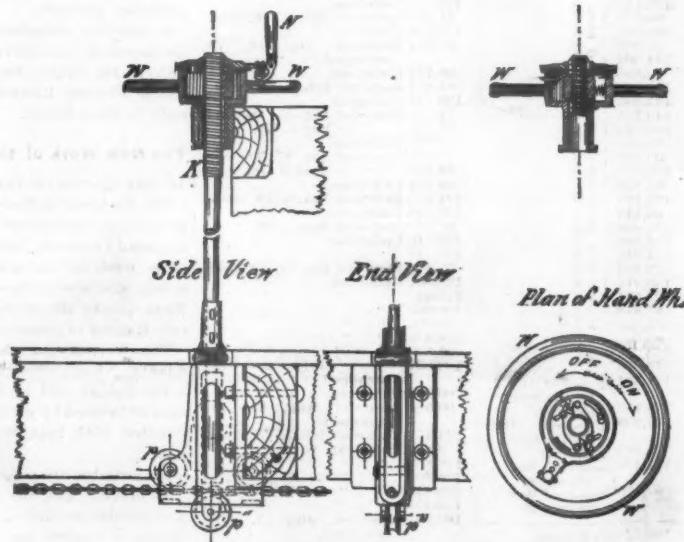


Fig. 4. MANIPULATING GEAR.

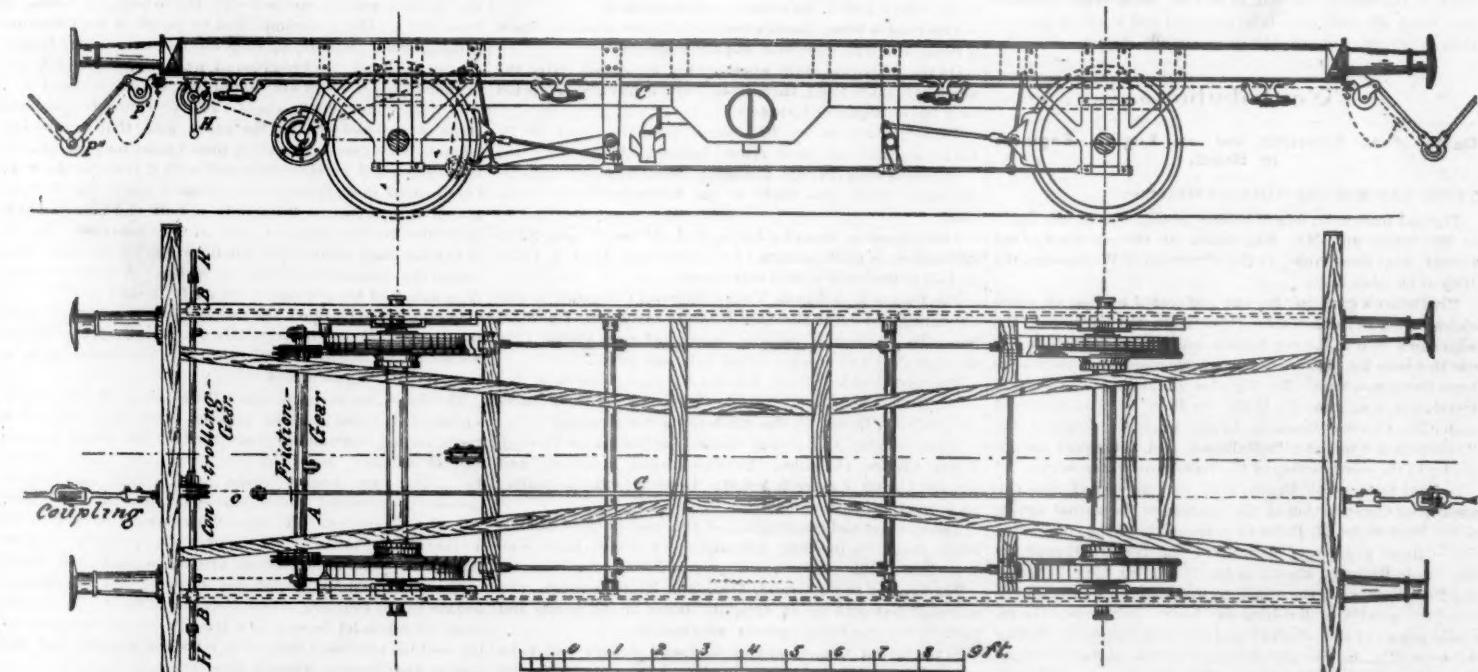


Fig. 5. BECKER'S AUTOMATIC FRICTION BRAKE APPLIED TO A PASSENGER CAR OF THE AUSTRIAN NORTHERN RAILROAD.

ductor's car, or in both, or on several cars of a train. Its construction and operation will be understood from the engraving, fig. 4, and the following: The transmission chain passes between three pulleys, two of which, *p* and *p'*, are fixed, held in a cast-iron frame attached to the tender or car, and the third or middle pulley, *p*', can slide up and down between guides, thus pulling on the chain or not. This middle pulley is held by a vertical rod, whose upper end is provided with a screw spindle, *K*, by means of which and of

the right, while he holds the hand wheel stationary with the other hand.

In fig. 5 the arrangement of the Becker brake on a passenger car of the Austrian Northern Railroad is shown in side view and plan. The letters denoting its different parts correspond with those used in the description and illustration of its details.

This brake, as will now be understood from the above description, has several advantages of its own, due to its

the handle *H*) on a single car, or on a group of cars, when switching ; it brakes automatically the separated part of the train in case the train breaks in two ; it will never admit of the wheels skidding, as the braking force is developed from the rotary movement of the wheels, and its action is thus most powerful in beginning (although it begins without the slightest jerk, as stated from observation) and gradually vanishes with the diminution of the speed of the vehicle ; it is easy to manipulate and to keep in

good order, all parts being accessible to a constant inspection.

Trials which have been conducted on the Northern Railroad in Austria, have induced that company to adopt this brake for its passenger and freight trains. Under the most disadvantageous conditions, it is said to bring a train to a stand in about 300 yards. It weighs from 600 to 750 lbs., and costs from \$125 to \$150 per car on the Austrian Northern Railroad. The transformation of the old hand-brake into a Becker friction brake does not cost to exceed \$60.

Any further information concerning the Becker brake can be had by applying to Mr. Thomas F. Krajewski, No. 71 Broadway, New York.

Widening Gauge on Curves.

TO THE EDITOR OF THE RAILROAD GAZETTE:

A recently-received description of the railroad from Pistoia to Bologna, Italy, gives the following table of amounts to be added to standard gauge for extra width on curves:

For curves of 3 to 4 degrees.....	0.3 inch
" " 4 to 4½ "	0.5 "
" " 4½ to 6 "	0.6 "

Can any of your readers give theory or experience in the matter in this country?

H.

Right of One Railroad to Cross the Track of Another in New York, and Measure of Damages Therefor.

The following opinion rendered by General Thayer, of Warsaw, N. Y., will have a special interest to many. We take it with the following introductory remarks (and apparently some errors in printing) from the Rochester Democrat and Chronicle:

"In view of the recent railroad war at Lockport many of our readers will be interested in the opinion of General Thayer—one of the commissioners who decided the amount of compensation to be given to the New York Central by the Buffalo & Lockport Railroad. It has been the custom of the new road to pay from \$4,000 to \$5,000 for each track crossed—taking into consideration the amount of damage to track and equipment by reason of jar and also cost of stopping and starting trains which some roads have figured at fabulous sums—while in this decision all this was barred out, the commissioners deciding that the word *compensation* in the statute did not mean *damage*, and so they put the compensation at \$700. The Buffalo & Lockport road had previously offered \$7,000 to the New York Central. It is an important decision."

SUPREME COURT.—In the matter of the petition of the Lockport & Buffalo Railway Company to appoint commissioners to determine the points and manner of crossing the tracks of the New York Central & Hudson River Railroad, and determine the compensation.

Three questions are submitted to the commissioners in this case, under the statute, for their determination.

The first question that presents itself is as to the point of crossing. It is claimed upon the part of the petitioner that no power is conferred upon the commissioners to change the point of crossing from that fixed by the surveyed and located route, and this claim is supported by a decision of the Supreme Court. It is admitted, however, that the location of the track of the petitioners' road may be fixed by the commissioners at any point within the boundaries of their road as surveyed and located. Inasmuch as a proceeding has been commenced by the contestant, under another section of the statute, to change the location of the petitioners' road, and is now pending in the Court of Appeals, we would hardly be justified in exercising the power, if indeed we possessed it, to change the route of the proposed road.

In respect to the next question, it is not denied that the commissioners possess full power to determine in what manner the crossing shall be constructed. They have power to determine whether the new road shall be constructed under, or over, or upon the same grade of the old road, and I am strongly inclined to think we possess the power to determine at what angle the crossing shall be made, although it may involve the necessity, on the part of the petitioner, to change its route to some extent on one or both sides of the crossing, but how far this power conferred upon the commissioners should be exercised, at the sole expense of the proposed road, depends, in my judgment, very much upon the conclusions we arrive at upon the third, and, doubtless, the most important question submitted to us, viz., the compensation that should be made by the petitioner to the contestant. Hence it becomes necessary to determine that question first. Upon that question the statute does not in terms give us any aid. In fact, it does not in terms require the payment of any. It does not only give to the petitioners the absolute right to cross or intersect the contestants' road, but requires the contestants to assist in making the connection or crossing or compensation to be made; commissioners are to be appointed to determine those matters of dispute, and those only, so by implication it requires some compensation should be made, by the new company to the old one, but for what, the act does not specify. There can be no doubt, however, that the act contemplates that compensation should be made for any services rendered by the contestants in making the connection or crossing.

Beyond this it is apparent that the petitioner will be benefitted by the right of way which has been obtained from the owner of the fee at more or less expense by the contestants. True they have no right to convey it, and it is equally true the petitioner has no right to construct its road as against the owner of the fee under any authority derived from the contestants, but must obtain authority from the owner either by contract or appraisal in the same way as if the contestants had not obtained any, nor constructed their road. But having obtained it and constructed their road, the only value to the owner of the fee consists in the possibility of an abandonment of the possession by the contestants and consequently a reversion of the possession to the owner.

The possibility of such reversion, however, can hardly be regarded of much value, and hence the right can be obtained by the petitioner for a small compensation to the owner of the fee. It would, therefore, be eminently just that the petitioner should share with the contestants in the expense by obtaining the right of way which benefits it nearly if not quite as much as it does the contestants.

Again, the petitioner may be benefited by grading the road, which has been done by the contestants, and whatever that is the petitioner should pay for. These comprise all the subjects of compensation that the statute clearly contemplates, and they are all from which the petitioner can derive any benefit. That this is all that the statute intended may fairly be inferred from the word employed.

The word compensation, as defined by Webster, is that which constitutes or is regarded as an equivalent "payment of a debt by a credit of equal amount." Had the legislature intended anything more than to make equal return for

the benefits obtained, it would have expressed its intention by the use of far more appropriate and comprehensive words. Instead of the words, compensation therefor, it would have said, the damages sustained thereby. But other matters must be considered in order to ascertain upon what basis compensation should be made to the contestants. And, first, what are their rights, and how derived? They are corporations created by statute, and derive all their powers from the statute creating them. Although organized as private corporations, they are deemed in law, and so declared by the statute, for the public benefit, and hence, are authorized to take private property, for the purpose of constructing and operating their roads. But for this fact, the Legislature would have no power to confer any such authority. The state exercises this authority under its right of eminent domain, on the same principle that it can take private property for its own use. But it does not in any way part with, or convey the right of eminent domain, but simply exercises it in behalf of the corporations. The right itself remains in the state over its entire territory.

The right conferred upon the railroad corporation is a mere franchise or privilege or, as Governor Tilden would say, a mere "usufruct." It authorizes the railroad company to enter upon, take possession of, and use the said lands for the purposes of its incorporation, during the continuance of its corporate existence, and it further declares that the land it thus appropriates shall be deemed to be acquired for public use. The title to the land being thus limited to its use for the purpose of the railroad enterprise, it is necessarily subject to the exercise of all those powers reserved to the Legislature to which the franchises of the corporation are subject. If the latter can be restricted or modified by subsequent legislation, the uses to which the land which the corporation has acquired may be changed by the same authority. It has long been the policy of the Legislature to qualify corporate franchises in such a manner as to render them subject to the control of the law-making power. For this purpose the revised statutes provided that the charter of every corporation which should thereafter be granted by the Legislature shall be subject to alteration, suspension or repeal at its discretion.

("The Albany & N. R. Co." vs. Brownell, 24th N. Y., 349.)

The right of the Legislature to change or modify the charters granted to railroad corporations has been frequently exercised.

For instance, in 1853 an act was passed making it lawful for the authorities of any city, village or town in the state to lay out any street or highway across the track of any railroad then laid or thereafter to be laid, without any compensation to the railroad corporation. But this is not all. By the next section it made the duty of the railroad corporation to cause the new street or highway to be taken across its track, and to cause all necessary embankments, excavations and other work to be done on its road for that purpose. Still further, the same act imposes a penalty upon the corporation of \$20 for each and every day it neglects to comply with the requisitions named.

The provisions of this statute show very clearly what powers the Legislature claims the right to exercise over railroad corporations, and under what circumstances compensation is required to be made and when. In the case of a street or highway, the railroad corporation is compelled at its own expense to construct it across its track. Why is this required? It may be said that the street or highway is for public use, and hence the statute requires it. True, the street or highway is constructed for the use of the public, but this fact alone does not authorize the taking of private property without just compensation therefor, much less compel the owner of the property to construct the street or highway at its own expense. But the railroad, as well as the street and highway, was constructed for public use, and upon that ground alone was authorized to acquire private property for its construction. It is therefore treated, operated for the benefit of the public, or, in other words, as a public highway for the benefit of commerce. It is upon that ground a railroad corporation is required to contribute in constructing other enterprises intended for the benefit of the public. It is precisely upon the same ground the Legislature authorizes one railroad company to construct its track across another or unite with it. Yet it is claimed by the contestants' counsel that the road crossed is entitled to the same compensation, or rather damages, as if the new company were a naked trespasser and had constructed its track by force without authority.

I cannot concur with the claim. Certainly no greater compensation should be made to a railroad corporation than the statute requires to be made to the owner of the fee when his land is taken upon appraisal for the construction of a railroad. The rule of compensation in such proceedings has been very fully settled in this state at least. In such a proceeding the commissioners are required to ascertain and determine the compensation which ought justly to be made by the company to the owners or persons interested in the real estate appraised by them; and in fixing the amount of such compensation said commissioners shall not make any allowance or deduction on account of any real or supposed benefits which the parties interested may derive from the construction of the proposed railroad.

The rule adopted by the courts to ascertain the compensation is to appraise the lot or farm through which the road is laid, and the value of the remaining portions after taking out the lands required for the railroad track, and the difference between those sums constitute the compensation required to be paid.

Troy & Boston Railroad Company vs. Lee, 13, Bar 169.
The Albany N. Railroad Company vs. Lansey, 16, Bar 48.
The Troy & Boston Railroad Company vs. the Northern Turnpike Company, 16, Bar 100.

The Canandaigua & Niagara Falls Railroad Company vs. Payne, 16, Bar 273.

In the matter of the Utica & C. Railroad, 56, Bar 456.
In the case last quoted it is true the court differed somewhat with some of the other decisions quoted as to the admissibility of evidence upon the question of compensation, but not at all as to the rule upon which compensations should be made. Foster, J., says: "The true question, I think, is, what will the place as a whole bring in the market without the railroad, and what will the residue bring in the market after the railroad is constructed? And everything that will depreciate the value of that residue is to be taken into account." The rule established by all the decisions that I have examined is that the owner of the fee is to be paid the actual value of the land taken, and no deductions can be made therefrom by reason of any benefits to be derived from the construction of the railroad by enhancing the value of the owner's remaining lands or otherwise. On the other hand, if his remaining lands remain as valuable as they were before the construction of the railway, whether that value is in whole or in part caused by the construction of the road or not, he is entitled to no compensation whatever in the way of damages to lands not taken up by the corporation. Applying the same rule to this case the inquiry would be: First—What is the value of the lands actually taken by the petitioners? But the contestants are not entitled to that sum, for the reason that they are not deprived of the use of the lands taken, as in case of the owner of the fee, but are still entitled to use the lands as before.

Hence it would seem that one-half that value would be the just compensation. Second—The next inquiry under the same rule would be: What were the values of the roads crossed before the construction of the new road, and what will they be worth after? and the difference would be the compensation, if they are entitled to any on that ground upon that question. No evidence has been offered, and I apprehend none can be which would be more than speculative and conjectural. But the contestants claim that they are entitled to compensation for the injury to their rolling stock, which will be caused from crossing the petitioners' track; and also for the delays in their business which will be necessarily occasioned by the crossing. We are of the opinion that they are not entitled to either; first, for the reason that such injury, whatever it may be, is incapable of being proved by any direct evidence, but at best must rest upon opinions of witnesses, and hence, is too remote and conjectural; and second, upon the more satisfactory ground, that in our judgment the statute does not contemplate any such compensation. We cannot conceive upon what ground a railroad corporation can be compelled at its own expense to construct a street or highway across its track, under a penalty of \$20 per day for its failure to do so, and at the same time be allowed consequential damages against another railroad corporation for crossing its track.

There is another inconsistency in such a construction of the act. It gives to one railroad company the absolute right to construct its track across the track of another company at any point on its route, but yet makes it liable to pay the same damages as if the new company was a mere *lost fief* and committed the act without any authority whatsoever. There is still another inconsistency in such a construction of the statute and the decisions of the courts above quoted.

The contestants obtained the use of the land in question on the ground that it was to be used for the benefit of the public, and yet claim the same compensation, and even more, against another company which asks the common use of it for the same purpose, as if it were private property. We do not think the act, when correctly construed, involves any such inconsistencies. On the contrary, we think it treats both roads in the nature of public highways, intended, and, in fact, constructed for the benefit of the public, although constructed and operated by private corporations. And this is no fiction, but the literal fact. Whatever may formerly have been the object of forming railroad corporations and constructing railroads, few, if any, are now formed, in this state at least with the least expectation of deriving any revenue to the stockholders by dividends upon stock. On the contrary, it is expected that the money paid for stocks is lost as an investment. It is because the construction of the road is expected to benefit the public, of which those who take stock form a part, that such enterprises are now undertaken at all. Hence individual contributions for the construction of railroads, whether made by subscriptions for stock or otherwise, are donations to the public almost as much as if made for the construction of a street or highway. It must have been for this reason that the Legislature a few years since passed an act authorizing cities and towns to bond themselves for the purpose of constructing railroads. On no other ground could such a law be defended, or even valid. The fact that such a law has been made invalid by the new constitution in no sense changes or removes the reason for its enactment. It was no doubt prohibited on account of the temptation and danger of involving cities and towns in debts for roads not required, and therefore not for the benefit of the public. We therefore arrive at the conclusion that the contestants are entitled to no other compensation for crossing their several tracks than as above stated. If we are right in this, it would be manifestly unjust to require the petitioner to construct an overcrossing at a large expense over the tracks of the contestants. If the crossings were to be made in a thickly-populated city or village the public interests might require it, but the contestants have no right to demand it, merely to relieve them from the inconveniences or even consequential damages which would be the result of a crossing at grade.

As both parties assume that the crossing is to be made by the petitioner, the expenses, of course, will be incurred and paid by it, and what they will be, so far as these proceedings are concerned, is wholly immaterial.

It is presumed it will be done in a proper manner, and if not the petitioner will be liable for the consequences. While we think the angle of the crossing would be less objectionable if not so acute, we do not see that it could be removed without a material change of the line of the petitioner's track and route. As to the danger of such a crossing, we think none can be apprehended if there is no negligence on the part of some one. Whether the trains on one or both roads should stop on approaching the crossing, or whether watchmen should be kept at the crossings, and if so, at whose expense, are questions relating to the operation of the road, with which we have nothing to do. Our duties are discharged and our powers ended, when we have determined the matters submitted to us, namely, the points and manner of crossing the contestants' tracks, and the compensation to be made therefor.

Transportation in Congress.

In the Senate on the 3d:

Mr. Matthews, Ohio, called up the Senate bill in the calendar from the last session, known as the Texas Pacific Railroad Bill. He said he did so for the purpose of discussing it. He then spoke at length in favor of the bill, and said at the proper time he would submit certain amendments for the purpose of making the bill conform to a similar one now pending in the House. These amendments did not, however, affect the general substance of the measure.

At the conclusion of the remarks of Mr. Matthews, the bill resumed its place upon the calendar.

In the House on the 3d, bills were introduced: By Mr. Gibson, of Louisiana, for the improvement of the Mississippi River from its mouth to its headwaters.

By Mr. Kidder, of Dakota, granting right of way to the Sioux City Railroad Company.

By Mr. Garrison, of Illinois, for the admission and registry of foreign-built ships. Referred to the Committee on Commerce.

Notes.

The veteran stockholder makes his appearance this winter in the person of Hon. Artemas Hale, of Bridgewater, Mass., 95 years old and an original stockholder, who attended the Old Colony meeting in Boston last week.

Three loud-spoken women on Conductor Brothers' Utica accommodation train exclaimed when he picked up a pocket-book in the train, "That's mine." The owner quietly remarked, "You will find my card inside."—*Utica Herald*.

There is this trouble about traveling on a scrub railroad that charges about six or seven cents a mile; when a man wants to buy a ticket to go a hundred miles, he thinks the agent misunderstands him and is trying to unload a few shares of stock on to him.—*Burlington Hawkeye*.

The tramp who was hauled out from under a passenger car after riding 50 miles on the brake-beam, said it was all right; he thought himself it was time for him to get up and dust.



Published Every Friday.

CONDUCTED BY

S. WRIGHT DUNNING AND M. N. FORNEY.

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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

A NEW PITTSBURGH RAILROAD.

Probably there are few places in the country whose traffic is of equal importance that have had less railroad competition for it than Pittsburgh. It has a truly enormous freight business—greater, probably than railroad men even, outside of that place, have any idea of. The materials which form that traffic are largely those substances which are nearly the cheapest of all property that is moved by rail, namely, coal and iron ore. Coal in Pittsburgh is cheaper than almost anywhere else in a manufacturing community, and this is well understood to be the basis of its great manufacturing industry. Coal and coke are brought to it (from mines at no great distance), as well as sent from it; it receives great quantities of iron ore from Lake Superior and elsewhere, and it ships vast quantities of the coarsest manufactures, such as pig and other iron, coarse glass, etc. A place manufacturing textile fabrics of high grade might readily produce several times as much value as Pittsburgh, and yet not afford a quarter of its traffic. Corn, the cheapest of Western freights, is now worth little more per pound in Chicago than pig iron in Pittsburgh; and the Chicago corn is worth six or seven times as much as the Pittsburgh coal. For manufactures like those of Pittsburgh cheap communications with its markets are of the first importance. A comparatively small addition to the freight rate adds a considerable percentage to the cost of pig iron sent from Pittsburgh to Chicago, and may easily double the cost of coal. There is scarcely any other business to which water communication is so advantageous.

Still Pittsburgh had its railroad outlets for many years pretty much all controlled by a single railroad company. It complained bitterly and urged and encouraged a new outlet to the East, which at length the Baltimore & Ohio provided through the Pittsburgh & Connellsville Railroad. But Pittsburgh seems never to have been satisfied with the result, complaining that the new road has been as bad as the old one. As the Baltimore & Ohio has never been able to get any-

thing like full interest on its investment in this road, however, it is not probable that its charges have been exorbitant. It is likely that, discovering on reaching Pittsburgh that anything less than the Pennsylvania Railroad's rates would not adequately support its own line, the Baltimore & Ohio was loath to make any reductions; and that being all that the new road was wanted for by many of the Pittsburgh people, they were greatly disappointed.

But the Pennsylvania has continued to control the rail business between Pittsburgh and the West, where is probably the chief market for Pittsburgh manufactures, and whence it receives great quantities of iron ore and large supplies of agricultural produce. This, considering the great number of railroads in Ohio, seems quite remarkable. At the time so many scores of railroads were built where there was no traffic to speak of, one would think that at least one would have been constructed from this place with so vast a traffic.

It must not be supposed, however, that because one company controlled nearly all the railroads to Pittsburgh it has been possible to exact any rates, however high. To this there have been several obstacles. One of these is the nature of the traffic itself. The same reason that makes the traffic large—the cheapness and coarseness of the freight—has also made it necessary that it should be carried at low rates. In the manufacture of cotton goods worth five cents a yard and 40 cents a pound, I may be able to compete with a rival who pays but 30 cents per hundred while I pay 50 cents. The difference is but one four-hundredth of a cent per yard after all. But with pig iron at \$16 a ton it is another thing. Twenty cents a hundred adds \$8.20 to the price. And with coal, five cents per 100 lbs. would add one-half to the price and make competition simply impossible. To get any business, therefore, the railroads have to make very low rates on many of the leading Pittsburgh freights. They are constantly tempted to make some reductions which will render it possible for a Pittsburgh manufacturer to get an order which otherwise would go to the works in St. Louis, Indianapolis or Milwaukee. People do not have to go to Pittsburgh for iron, glass and coal; they can get these things elsewhere, and they will get them elsewhere if the Pittsburgh wares are made dearer to them, whether by railroad freights or otherwise.

But Pittsburgh is further protected by its river outlet. It has been said, and there is some truth in the saying, that the Ohio River is frozen up half the year and dried up the greater part of the other half, but it is also true that in the comparatively short time that it is open it carries an enormous quantity of freight, and more from Pittsburgh, its very head, than from all other places combined. For instance, 2,500,000 tons of coal have been shipped by it from Pittsburgh in one year; pig iron, bar iron, rails, glass bottles, and the like, go on it in large quantities, in barges towed to any points on the Ohio or on the lower Mississippi and largely also to St. Louis. As the barge rates are extremely low—almost the lowest of all freight rates—it may be imagined what an effect they have on rail rates. Scarcely any coal goes by rail to points accessible to the river, and a great part of the other heavy freight makes little use of the railroads for distant markets. For instance, the great brewers of St. Louis gets barge-loads of bottles for their beer from Pittsburgh, and doubtless for something like half the actual cost by rail.

But in spite of this, the fact remains that the railroad traffic of Pittsburgh is very large and valuable. And it doubtless has been more valuable because of the extent to which it has been controlled by a single company than it would have been otherwise. For while Pittsburgh gets the advantage of low regular rates made to other places, it does not always get the advantage of low irregular rates. When cutting rates begins it is always at some place where two or more companies compete, and of course all parties try to prevent the extension of the cutting to the rest of their traffic. They cannot always prevent the reduction at one place where they compete having an effect at other places where they have a monopoly of the traffic, but they can often delay it and usually can make the reduction less there than at the competing point. So, though Pittsburgh may always have reasonable rates, it may not so often as most other places enjoy the unreasonably low rates with which railroad wars are fought. And whether rates are in themselves reasonable or not makes little difference to the producer who must compete with producers at other places which have lower rates. I am not entitled to have my freight carried for nothing; but still I may be ruined by having to pay less than the cost of carrying it if my competitor in business has his freight carried for nothing.

One reason why Pittsburgh business is exceptionally valuable to the railroads is because it affords an un-

usually large quantity of west-bound freight. With three cars out of four going west empty, it is apparent that additions of freight of this kind come to be looked upon as almost clear profit. When Mr. Shinn was General Freight Agent of the Pittsburgh, Fort Wayne & Chicago Railway, he made and published some very interesting studies of this subject, showing with what extremely low rates traffic of this kind could be made to add to the net profits of the road. And it is doubtless because there are so many empty cars going west all the time that this road and the Pittsburgh, Cincinnati & St. Louis make the low rates by which they are able to carry coal and coke great distances—to Chicago more than 200,000 tons of coal in one year. Trunk lines find additions of through west-bound traffic much more valuable to them than equal additions of east-bound. To carry an additional 400 tons of provisions or grain from Chicago to New York, they must provide an additional engine, 30 additional cars, and run an additional train some 1,900 miles—to New York and back to Chicago. But to take an additional 400 tons from New York or Buffalo or Pittsburgh to Chicago, not an engine nor a car need be added to the stock, not one additional train-mile or car-mile need be run. The terminal expenses connected with receiving and delivering freight and the cost of the small additional amount of fuel required to haul loaded instead of empty cars, are pretty much the only additions to the expenses. The west-bound traffic is, therefore, especially desirable, and it is easy to understand why a company should make special efforts to increase it on its own lines, either by developing new business or by diverting old business from other roads.

This makes it the more remarkable that hitherto the other trunk lines have made no serious effort to take from the Pennsylvania Company a share of the Pittsburgh traffic. That company works the lines to Erie and Cleveland, as well as those to Chicago, Cincinnati and the West generally, and controls the Allegheny Valley line, which connects Pittsburgh with the oil regions and with Buffalo. And this delay on the part of other roads is the more remarkable because the connection which is now made, and which gives two of the great carriers north of Pittsburgh a favorable route for traffic between Pittsburgh and the whole West, is obtained by constructing only 68 miles of road.

This little road, then, the Pittsburgh & Lake Erie, may be looked upon as an exceptionally important line, opening as it does a wholly new route from Pittsburgh to Ashtabula, Cleveland, Cincinnati, Chicago and the country beyond.

In many cases when roads like this are built, it is only with the hope of working in connection with the longer roads which it joins or crosses, and securing their active co-operation—a hope which often is not realized. One of the commonest arguments in favor of the future profitability of a railroad and the security of its bonds is the number of connections which it will make, though these connections are often with lines whose interests forbid their using the new road, or which may, and finally do, choose to make a combination with some other line in preference. But the Pittsburgh & Lake Erie had contracts with its important connections, the Lake Shore & Michigan Southern and the Atlantic & Great Western, before its construction was begun. Indeed, the new road probably was the fruit of that contract, and may properly be looked upon as a Pittsburgh Branch whose construction these companies have secured, though without any contribution to the cost or assumption of liability for the result.

This contract provides that traffic between Cleveland and Pittsburgh shall be carried over the leased Cleveland & Mahoning line of the Atlantic & Great Western, from Cleveland to Youngstown, which is the northwestern terminus of the Pittsburgh & Lake Erie, and thence to Pittsburgh over the 68 miles of the Pittsburgh & Lake Erie. This makes a Pittsburgh-Cleveland line 133 miles long, against 150 miles by the Pennsylvania's leased Cleveland & Pittsburgh Railroad. Ashtabula will be reached by a connection of the Pittsburgh & Lake Erie with the Mahoning Coal Branch of the Lake Shore & Michigan Southern, 62 miles long, making a line 190 miles long, against 125 miles by the Pennsylvania's line. The Lake Superior ore used at Pittsburgh comes chiefly by Cleveland, Ashtabula and Erie, the latter being 148 miles distant by the Pennsylvania's Erie & Pittsburgh road, against 171 by the Lake Shore and the new road.

Traffic from the Pittsburgh & Lake Erie bound eastward is to be turned over to the Lake Shore road at Youngstown. By this route the distance to New York will be nearly 700 miles, against 444 by the Pennsylvania. The distance to Boston, however, will be but 700 miles by the new line, against 675 by the Pennsylvania. If much east-bound business is done by the for-

mer, it is likely to be to New England rather than New York city.

Traffic to the west and northwest, including, we believe, all to the north of the Baltimore & Ohio's Chicago line, is to go to Cleveland and thence by the Lake Shore & Michigan Southern. The distance from Pittsburgh to Chicago by this line is 489 miles, against 469 by the Pittsburgh, Fort Wayne & Chicago. This will be a very favorable route, the difference in distance not being enough to prevent making equally good time, while important markets for Pittsburgh freights are directly on the Lake Shore's lines.

Traffic to points south and southwest of Cleveland—that is, everywhere south of the Lake Shore's territory—is to go to the Atlantic & Great Western. A great many important markets for Pittsburgh manufacturers are in this district, but the distance is considerably greater by the Atlantic & Great Western than by the Pennsylvania line (to most places the Pittsburgh, Cincinnati & St. Louis). Thus the distances by the two routes are :

	Penn. R. R.	A. & G. W.
Dayton	294	308
Columbus	193	261
Cincinnati	313	307
Indianapolis	381	405

In the routes to Columbus and Indianapolis the Atlantic & Great Western forms comparatively a small part—about 150 miles.

Although the Pittsburgh traffic is so large, and although the new road and its connections will give it a new outlet to nearly the whole West, it will be easy to overestimate its effect in diverting traffic from the Pennsylvania's lines. One of the peculiarities of leading articles of Pittsburgh freight is that a very large proportion of it is and must be delivered or loaded on the premises of the consignee or shipper. Great iron works and the like have sidings laid down on their grounds, and the cost of carting half a mile even would often be fatal to the prosperity of the manufacturer. The consequence is that an old, established railroad like the Pennsylvania, constructed when the town was comparatively small and land cheap, has had an opportunity to put its tracks where they will best collect traffic, and has been compelled to establish what is equivalent to a score of stations. Now to reach Pittsburgh is one thing, and to reach these dozens of great factories so as to be of much use to them is a different and much more difficult thing. It is easy to see that with a station in a central position in Pittsburgh and the general good-will of the people, the new road may be able to get but a comparatively small share of some of the heaviest freights.

It is not, however, as if there had been a new road built from Pittsburgh to Chicago, such as the Baltimore & Ohio formerly intended to construct. It is a little line, only 68 miles long, with considerable local resources, and likely to have business enough at all events to support it fairly, especially as it will have two great railroads working to secure its traffic as if it were their own.

Formerly the opening of such a road would have been the signal for cutting rates. When a new rival entered the field the old line seemed inclined to show it that though it might get traffic it would get no profit. After bleeding to exhaustion the two would finally attempt to establish paying rates again, but frequently would find it impossible to keep them at the old figures after having reduced them so much. But recently there have been some cases where all parties seemed to recognize the fact that when a road is once built it will not be removed, however unprofitable the business may be, and that when traffic is divided there is all the more need of a profit on it. There has never been any cutting, we believe, between the old and the new lines from New York to Philadelphia. The two companies agreed upon a rate before the new road was opened. But it will count for something that the new road will make a railroad war more harmful than heretofore to the Pennsylvania interest. It, however, can hardly complain. It has sent lines northward until it taps nearly every important place on the feeders of the New York Central and the Erie—Buffalo, Erie, Ashtabula, Cleveland, Toledo, Kalamazoo and Grand Rapids. The Lake Shore in Pittsburgh may be regarded as a set-off for the Pennsylvania in Buffalo; though if the Lake Shore does not get more Pittsburgh traffic than the Pennsylvania does Buffalo traffic, the projectors of the new road will certainly be disappointed.

The New York Freight Apportionment.

A good deal has been said recently as to cutting rates on west-bound freight, and it has been charged that the apportionment is, and long has been, a sham. There has been enough truth in these statements to make some people believe the whole of them.

At various times since the agreement for the divi-

sion of New York freight went into effect on the 1st of July, 1877, efforts have been made by various western connections of the trunk lines to increase their proportions by offering rebates. In some cases the offending road has apparently acted in defiance of its trunk line connection, but in others it has seemed that there must have been connivance on the part of the trunk line. But though the efforts thus made have sometimes caused considerably more than its proportion to be offered to one or other of the trunk lines at the time, we believe that in no case have they carried the excess—that is, not in the long run. Transfers are not made as soon as an excess is shown, because the road which has too much this week may have too little next, and so the balance may be brought about without any handling.

During the whole time that the pool has been in operation, more than its proportion has been offered to the New York Central. It was anticipated that this might be the case for a few months, because it had contracted for an immense proportion of the freight during the year previous (the contracts expiring just as the pool went into effect), and the Pennsylvania had been substantially out of the market. But there continued to be an excess all last winter, though not so much as earlier, made greater than it would have been otherwise, doubtless, by the efforts of the Wabash to enlarge its business by rebates and the like.

Last May the New York Central gave notice that it should claim a revision of the contract and a larger share of the freight. Negotiations were begun, but, before any conclusion was arrived at, something (Mr. Garrett's absence, we believe) caused one of the parties to ask to have the matter postponed. It was urged then that while the temporary effect of the contracts of 1876 might have expired before last winter, the quantity offered the New York Central had been made considerably larger by the operations of the Wabash, and that therefore the winter's business was not a fair criterion of the natural division of the traffic among the several lines. This may also have been a reason for postponing a division. Everything was working smoothly at the time, and it may have been thought that the summer business would afford a fairer basis for a permanent division than any previous experience.

But this left great temptations to each road to make tremendous efforts to increase the proportion of freight offered it. A new division was demanded and was likely to be made, and if the New York Central was to get more, each of the other three roads was anxious that what should be added should not be taken from its share. If meanwhile it could get more than its proportion offered to it, it could insist that its percentage should not be reduced. It did not matter that it would not be allowed to carry the additional one, two or three per cent. that might be offered it. It was the traffic of future years that it was working for, not the paltry tonnage of a month or two this year. It is believed that various illegitimate efforts were made to increase proportions, but the only one that seems to have had much effect, or has attracted much attention, was by connections of the Baltimore & Ohio Railroad. That road, by the old agreement, was given 9 per cent. of the New York shipments. It is said that for a long time after the division began it did not have nearly this amount offered it. But recently it has had a little more than its proportion. Being far behind, after it was known that its business was being increased by rebates, no complaint was made, it being tacitly understood that it might make up its proportion in that way if it preferred to accept less than full rates instead of full rates, as it would have its percentage in any event. At this time we believe it has a little more than made up its proportion.

On Thursday of this week there is to be a meeting of the parties to the apportionment contract, not particularly to deal with this matter of cutting rates, but to decide upon the percentages to be allotted hereafter—that is, to complete the business begun last May. The New York Central in consenting to a postponement required, we believe, that the award should cover the business back to the time of the postponement or the claim. We believe that in spite of the recent special efforts to divert traffic (few of which seem to have been in its favor), it has continued to have more than 33 per cent. of the freight offered it.

All the irregularities since the pool was formed, however, have had on the whole scarcely any influence on the aggregate receipts. The cuts themselves have been slight, because they have not been met, and a slight reduction was enough to effect the purpose aimed at. And most of them have had absolutely no influence on the amount of traffic carried on the several trunk lines—only on the amount offered them. Judging by the experience of recent years

as to what rates would have been without the combination, it must have been of enormous advantage, and that not to the trunk lines only, but also to all their Western connections which carry through freight—an advantage which could not possibly be balanced by an addition of several per cent. even in the proportion carried by a line.

Probably the result of Thursday's conference will become known to most of our readers by the time this reaches them.

New York Street Railroads.

The reports of the street railroads of New York city to the State Engineer have been looked for with some interest to see what effect the elevated roads may have had upon their business. Three of the principal companies have reported, two of which are directly affected by the west side elevated lines, while the third, the Third Avenue line, had to compete with the East Side Elevated road only about six weeks of the year covered by the report, which is that ending Sept. 30. Some figures from these reports are as follows:

Broadway & Seventh Avenue:	1877-78.	1876-77.	Inc. or Dec. P.c.
Passengers carried	18,452,557	19,438,335	D. 985,778 4.9
Gross earnings	\$443,630	\$400,506	D. \$46,936 4.7
Net earnings	368,090	346,497	L. 22,533 6.5

Eighth Avenue:	1877-78.	1876-77.	Inc. or Dec. P.c.
Passengers carried	14,286,998	14,752,900	D. 462,902 3.1
Gross earnings	\$745,111	\$767,479	D. \$22,368 2.9
Net earnings	167,171	183,789	D. 16,618 9.0

Third Avenue:	1877-78.	1876-77.	Inc. or Dec. P.c.
Passengers carried	30,400,000	30,700,000	D. 300,000 1.0
Gross earnings	\$1,710,682	\$1,730,456	D. \$18,774 5.9
Net earnings	719,602	666,272	L. 53,330 8.0

The Third Avenue receipts for 1876-77 above do not include \$88,000 for real estate sold, which was reported in that year.

The stockholders have not had much cause to complain as yet. The Broadway & Seventh Avenue Company, after paying \$119,000 interest and \$37,582.50 for new cars, divided \$199,500, being 9% per cent. on its capital stock of \$2,100,000, the same dividend as for the previous year. The Eighth Avenue paid \$15,220 interest and \$20,000 in reduction of floating debt, and then divided \$120,000, or 12 per cent., on its \$1,000,000 stock. The Third Avenue paid \$140,000 interest and bought \$30,000 bonds, paying from the surplus \$500,000 dividends and \$100,000 "payment to stockholders under resolution of directors," which is in all \$600,000 on its \$2,000,000 capital stock, or 30 per cent.—a very fair dividend in these times.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Manchester & Keene.—Extended from Hancock, N. H., westward to Keene, 17 miles.

Flint & Pere Marquette.—Track has been laid on the Saginaw & Clare County Branch from Farwell, Mich., north 3 miles.

Mobile & Spring Hill.—Completed from Mobile, Ala., west-west to Spring Hill, 8 miles.

West End Narrow Gauge.—Extended from Normandy, Mo., northwest to Florissant, 10 miles. It is of 3 ft. gauge.

Republican Valley.—The first track is laid from Hastings, Neb., south by west to Red Cloud, 41 miles.

Kansas Pacific.—This company's Junction City & Fort Kearny line has been extended from Clifton, Kan., west to Clyde, 6 miles. Its Solomon road has been completed from Solomon, Kan., northwest to Minneapolis, 23 miles.

Utah & Northern.—Extended from Portneuf Cañon, Idaho, northward to Blackfoot, 71 miles. It is of 3-ft. gauge.

This is a total of 179 miles of new railroad, making 2,126 miles completed in the United States in 1878, against 1,964 miles reported for the corresponding period in 1877, 2,158 in 1876, 1,726 in 1875, 1,731 in 1874, 3,456 in 1873 and 6,559 in 1872.

THE UNPROFITABILITY OF PASSENGER TRAFFIC has been the subject of much discussion in Germany recently. Formerly passenger traffic there was counted one of the chief resources of the railroads, and the change has been due not to a decrease in traffic, for it has increased, nor to a reduction of rates, for they have been very well maintained near the legal maximum; but to an increase in passenger expenses due to more frequent trains with fewer passengers, to greater speed, and the greater luxury in the appointments of railroad traveling—a course nearly parallel to that in this country, except that here there has hardly been as great an increase in traffic and a much greater increase in the elegance of cars. By the report of the Berlin & Dresden Railroad for the year 1877 it appears that the average receipt per passenger per mile was but 1.75 cents, while the expense was 3.345 cents, or nearly twice as much! The receipt per ton per mile on the same road was 2.062 cents, and the expense 3.215 cents. Thus the profit of 0.847 cents per ton per mile (how rich our American companies would be if they could make such a profit!) goes largely to pay a loss of 1.505 cents per passenger per mile. On another German road (Halle, Sorau & Gruben), while there was a profit of 0.835 cent per ton per mile, there was a loss of 0.04 cent per passenger mile.

The remedy proposed in Germany is a reduction of passenger expenses, it being considered impossible to increase the rates. And the reductions in expenses may be effected, it is urged, in the following ways: By a limitation of the number of passenger trains; by putting mixed trains in the place of certain passenger trains; by using, especially for short runs

and light suburban traffic, a kind of steam car something like the steam street cars; and by a reduction of the number of classes of passengers. A recent proposition is to have three classes, distinguished as follows: First class, with cushioned seats; second class, with uncushioned seats; third class, with places for standing only.

THE PACKING SEASON has opened most promisingly, so far as the bulk of business is concerned. Though the summer packing was very much greater than ever before, and last winter the product was so enormous as to seem likely to glut the market and discourage production the next season, we have reported for the first 27 days of the current season, at the six leading packing cities, 1,285,000 hogs have been packed this year, against 690,000 in 1877, 763,000 in 1876, 775,000 in 1875, 1,090,000 in 1874, and 1,035,000 in 1873. Taking all the packing places together, it is estimated that 1,800,000 hogs were packed this year, against 1,000,000 last year. The packing of the six leading places in the Northwest and the percentage of each of the total packing of the Northwest are reported as follows:

No. of Hogs.	Per cent.	No. of Hogs.	Per cent.
Chicago.....	56.4	385,000	55.8
Cincinnati.....	13.2	100,000	14.5
St. Louis.....	9.0	55,000	8.0
Milwaukee.....	8.2	50,000	7.2
Louisville.....	6.6	65,000	9.4
Indianapolis.....	6.6	35,000	5.1
Six cities.....	100.0	690,000	100.0

Chicago, thus, not only keeps its lead, but increases it somewhat, and no other place has packed one-fourth as many. The six places together gained 595,000 for the 27 days, and Chicago's gain meanwhile was 340,000. The weather was very unfavorable last year, and the great gain was made later in the season. The season cannot be said to have been favorable this year, not being cold enough. But it has been much better than November of last year, which was wet as well as warm. It is expected that December also will show a great gain over last year, but after that it is not probable that the gain will be so great. If it is, it is not easy to see what can be done with all the product. The importance of hog products as freight may be judged from the fact that the shipments of these products from Chicago during the first three weeks of November were 35,684 tons—enough to make nearly 2,000 old-fashioned car-loads every working day. St. Louis shipments for three days more time were but 3,953 tons, or 189 such car-loads daily. The exports for the first 23 days of November were 38,639 tons this year, against 22,401 last, the increase being 72½ per cent. Prices are so low that there seems to be no difficulty in finding a market for all the meat that is produced, though the farmers make great sacrifices. They get but about half as much for their hogs now as they did a year ago, and but about two-fifths of the price the two previous years. But heretofore hogs have been much more profitable than corn in the Northwest. Now the stock of hogs seems to have caught up with the corn production, so that, except at great distances from market, there is not much advantage in shipping hogs rather than corn. The former, however, are still worth about four times as much as corn per pound in Chicago.

THE TONNAGE OF VESSELS OF THE UNITED STATES is reported by the Secretary of the Treasury at the end of June last to have been 4,212,764, in 25,264 vessels, the average tonnage thus being 167 tons. Of the whole number 22,237, with 2,583,717 tons of the capacity—that is, 88 per cent. of the number, and 61 per cent. of the tonnage—was engaged in domestic commerce, and included many barges, a few canal-boats, etc. Vessels engaged on the interior waters of a state are not required to be enrolled and licensed by the Treasury Department. There was in the year an increase in the tonnage and number of vessels engaged in foreign trade, but a decrease in those engaged in domestic commerce. The average tonnage of the former at the end of the year was 536 tons. About 4½ per cent. of the total number of vessels were lost or abandoned during the year, and of these 3 per cent. (760) were lost at sea, which thus seems to be the usual death of a vessel.

The losses of the year were a little more than made up by the construction, and the decrease in aggregate tonnage is wholly due to sales to foreigners. And the tonnage of vessels built is a third greater than in the previous year. The new vessels, however, appear to have been mostly very little ones, having an average capacity of only 187 tons, which is less than that of the average Erie Canal boat. The vessels of different classes built during the year, their number, aggregate tonnage and average tonnage were:

Number.	Aggregate tonnage.	Average tonnage.
Sail vessels.....	532	166,007
Steam vessels.....	334	81,860
Enrolled canal-boats.....	10	1,908
Barges.....	373	45,639
Total.....	1,258	235,504

It would thus appear that the new construction is mostly of very small craft. Altogether they have a tonnage equivalent to that of about 17,000 modern freight cars (14 tons per car), and the total domestic tonnage registered equals that of 184,551 such cars.

These figures would be much more valuable if they included the tonnage not registered, the amount of which we only guess. Some idea of one class of the vessels may be had from the fact that the United States inspectors of steam-boats inspected 4,137 steam vessels in the year, with an aggregate capacity of 1,017,432 tons.

THE PROSPERITY OF THE LAKE MARINE is a matter which greatly interests the railroad companies—Eastern and Western companies—though the Western companies in-

terests are frequently opposed to those of the companies which connect them with the East. If the vessels have made tolerable profits at the rates of the past two or three years—profits enough to encourage the maintenance of the fleet by the construction of new vessels to take the place of the considerable tonnage that disappears every year—then there is little prospect that any considerable profit can be made by the railroads hereafter in carrying grain from the lake ports and other places in the same latitude to the seaboard. A short time ago we published a statement from a Detroit corporation interested in the lake business which indicated that, profitable or unprofitable, the lake tonnage is increased and not diminished during all this time of low rates, but that the increase is in large vessels and steam barges with tugs, while the small vessels are growing fewer in number. This indicated that the lake tonnage would not under any probable circumstances be likely to decrease, and that its competition with the railroads would be at least as effective hereafter as heretofore.

But a vessel-owner writes to the *Chicago Inter-Ocean* to state the following propositions, which he says cannot be controverted:

"1. That under existing circumstances the carrying capacity by steam and sail is in excess of the demand; that but by a unity of interests can very many of the present ownerships be maintained, and a living return had from the investment. This is painfully demonstrated almost daily, so further comment is unnecessary."

"2. The increased facilities afforded by the great trunk lines being also in excess of the demand, ruinous wars for the supremacy was the result until absolute necessity compelled a return to reason, and a determination to demand adequate compensation."

He then urges the consideration of some plan for maintaining rates, and of a severer inspection, which would have the effect of reducing the tonnage offering.

LAKE NAVIGATION, it is said, is likely to continue later than usual, an unusual number of vessels at Chicago standing ready to start out with cargoes for Buffalo after November, tempted, doubtless, to encounter the risks by the (comparatively) high rate of 7 or 7½ cents a bushel, which is nearly twice as much as their average fall rate even this year, and four times as much as the July rate. Officers in charge of harbors have taken up the buoys and removed the lightships, but several vessels left Chicago on the 28th ult., and a schooner with capacity for 90,000 bushels of corn was chartered for Sarnia on the 29th, and on that day there were as many as 13 cargoes of grain on Lake Michigan on the way down, and others were loading, and still others offering. There is danger that the Straits of Mackinaw may close before all of these get through, but this will only necessitate the return of the vessels, and the lakes themselves will be open much of the time through the winter. Lumber vessels, therefore, can sail longer than the grain and ore vessels that have to pass through the Straits. There will hardly be any cessation of activity among those carrying to Chicago from Lake Michigan ports until after the middle of this month, and in every month of the winter some passages are likely to be made.

LAKE RATES have advanced from 6½ to 7½ cents per bushel for wheat from Chicago to Buffalo, with cargoes leaving nearly every day in the week when the weather permitted; but it is not probable that the shipments hereafter, if any, will include any considerable quantities.

There are no through canal rates. The few boats leaving Buffalo are for interior points. The canal is to be closed next Saturday. Railroad rates from Buffalo to New York since the canal shipments ceased are reported half a cent lower on wheat, and now stand at 7½ cents per bushel for wheat, 7 for corn and 5 cents for oats.

Ocean rates are, perhaps, a little lower. Quotations Tuesday, by steam to Liverpool, were 7d. per bushel (56 lbs.) for corn; 2s. 9d. to 3s. per barrel for flour, 3s. to 3s. 6d. per ton for provisions, 47s. 9d. per ton for butter and cheese; ½d. per pound for cotton. To Cork for orders, to Bordeaux and to Havre, charters of sailing vessels are reported at 5s. 3d., 5s. 6d. and 5s. 9d. per quarter for grain. Contracts for cotton to Liverpool from New Orleans are reported at 13s. 3d. to 7-16d. per pound, chiefly 7-16d., against ½d. from New York.

THE RAILROAD MAIL SERVICE at the end of last June, extended over 77,119 miles of railroad routes, according to the report of the Superintendent of that service. The miles of railroad over which the service extended were probably somewhat less, as there are many cases where different railroads use the same track for a longer or shorter distance. According to Poor's Manual, the mileage of railroads in operation in the United States six months previously was 79,208, and some 500 miles more had been opened by July. If these figures are correct, it would indicate that there were last July at least 2,600 miles of railroad on which there was no mail service, which seems extremely improbable. Usually one of the first things a new railroad is called upon to do is to carry the mails. On 16,980 miles of the routes, post-office cars were run, whose service amounted to 17,933,010 miles during the year, out of a total of 92,120,325 miles in the whole railroad service. On the whole system of 77,119 miles there was a service equivalent on the average to 1.8 mails each way daily for 318 days of the year; the post-office car service was equivalent to 1.69 runs daily each way on the lines on which such service was had.

THE OFFICIAL RAILWAY GUIDE, which has very nearly all the passenger time-tables of American railroads sent it, reports that for the twelve months ending with its December issue, it received an average of 158 new time-tables monthly, and in one month the number was 310. This not only illus-

trates the difficulty of making a railroad guide complete and accurate, but also the vast extent of the American railroad system. The December number of the *Official Guide* has time-tables for about 860 different roads. A number of the guide now has more than twice as many pages as *Harper's Monthly*. The pages are very large, too, and the printed surface is equivalent to about a thousand duodecimo volumes, and to nearly 700 pages of guides of the old shape, like the English Bradshaw and Appleton's. The *Official*, by the way, is very carefully edited, and generally has the cooperation of the railroad companies, though occasionally there is a new line which does not seem to find out that there is such a publication until it has been in operation for a year or two or more.

THE EAST-BOUND COMBINATION evidently was not begun early enough. The complaints that freight slips by some places and of discriminations against this and that city indicate very clearly that some of the places are living up to their agreement and that cutting is going on somewhere. That any of the pooling points are cutting we do not hear, and there are plenty of loop-holes for freight to slip by them, and will be until pools are made at several more places. The expressions of the railroad companies interested are uniformly in favor of the scheme, but that does not set it into operation. Terre Haute has been added to the number of pooling points during the past week, but more than one a week is needed if the scheme is to be perfected in time to protect the winter traffic. It ought to have been completed before navigation closed, but there is still time. Matters are in a delicate condition, however, and unless something is done soon it is to be feared that we will have last winter's experience over again—plenty of traffic and no money.

EDITORIAL LETTERS.

VI.

BLOOMINGTON, ILL.

After the manner of the old geographies, it might be said by a railroad man that Bloomington is noted for being the locality of the Chicago & Alton Railroad shops. These were fully described in the *Railroad Gazette* some years ago. Until recently the locomotive and car departments on this road were independent of each other, the first being under the superintendence of Mr. Jackman, the Master Mechanic, and the latter under Mr. Reniff, the Master Car-Builders. Recently the two have been consolidated, and Mr. Jackman has been placed in charge of both. A son of Mr. Reniff, the former Master Car-Builders, is, however, still foreman of the car shops.

One of the first things which attracted attention here was a novel hand-car intended for the use of the men who have charge of the repairs of the telegraph. The idea of a velocipede to run on a railroad has occurred to a great many persons, but the difficulty exists of maintaining an upright position with a bicycle on the inflexibly straight or curved line on which the rails of a railroad are laid. This difficulty has been overcome by arranging the two supporting wheels to run on one rail, the rider sitting astride the vehicle as on an ordinary velocipede, immediately over one of the rails. From this portion of the vehicle a horizontal arm is attached which resembles somewhat the finger-bar of a reaping or mowing machine. This bar extends across the track to the opposite rail, on which a third wheel runs which supports the end of the transverse bar and thus steadies the machine. It is driven by levers and cranks worked by the hands and arms, and also by treadles operated with the feet of the operator. The car is extremely light and can be worked easily by one person on a level track.

We hope to give engravings of this car with fuller description soon. It is the invention of, and was built by, parties in Michigan.

Another novelty at the car-shops is a four-wheeled coal-car, which has just been completed. The body is 20 ft. long over the ends of the sills, and 8 ft. 4 in. wide, with sides 30 in. high. The wheels are 33 in. in diameter, and spread 10 ft. from centre to centre. The axles have collarless journals, the latter being 4¾ in. in diameter by 8 in. long, with Bissell's stop-wedge bearing. The diameter of axle in wheel-seat is 5¾ in. Those who think the Master Car-Builders' standard axle too large, will please note the above sizes. The weight and capacity of the car, as given last week, are: the former, 10,650 lbs. and the latter 28,000 lbs.

Mr. Jackman is now using copper for the sides of fire-boxes instead of steel, on account of the frequent cracking of the latter material. The back, crown and flue plates, and the whole outside shell of boilers, and also the tender tanks, he is making of steel. Steel for the outside shells of boilers is coming into general use in nearly all the Western railroad shops. Whether it will be more or less liable to corrosion, which is the insidious enemy of Western locomotive boilers, it is still too early to know.

Mr. Jackman is using the Master Car-Builders' standard axle for passenger cars, but for freight and tender axles he uses one which differs from that standard only in having a journal 6 in. instead of 7 in. long. He has, however, made a great many experiments on the strength of journals, which any one can repeat, and which if supported by the experience of others will indicate the necessity for increasing the strength of axles either by using a larger size or better material, or both. The experiments consisted simply in striking a hard blow with a heavy sledge on the outer end of a journal. Mr. Jackman says that a large proportion of the smaller-sized journals can be broken off with one such blow after the axle has been in use a few years. If this fact is sustained by common experience, it indicates a fatal deficiency in the strength of these parts of railroad cars.

At present no new work is in progress at the Bloomington shops, but it is expected that some new cars will be commenced early next year. About 125 new wheels are made per week in the foundry, for repairs.

A noticeable feature on the day trains on the Chicago & Alton road is the running of an unusually good class of cars, with a porter to look after the comfort of passengers. They are kept scrupulously clean, a duty which some railroad companies seem to have fallen into a habit of thinking has been delegated to the Pullman Car Company, and from which they are thus absolved. The cars of the Chicago & Alton road are provided with a wash-room, a luxury which costs so little that every railroad company should be able to supply it. It must be admitted, though, that in any attempt at keeping its cars decent and clean railroad officers encounter many discouragements and difficulties. There are, it must be confessed, many men and some women who do not seem to value cleanliness, and it is not unusual to find those who seem to prefer filth rather than decency. The common practice of running drawing-room, or reclining-chair cars, indicates clearly a tendency toward a division of travelers into first and second classes, although thus far this division is designated by some other name in deference to our democratic ideas. The end to be accomplished is the separation of the washed from the unwashed. The present parlor cars are arranged with one arm-chair to occupy the space of an ordinary double seat. For this reason the charge in these cars must be higher than many travelers can afford to pay. If, instead of these, a superior grade of cars, like those on the Chicago & Alton road, were run, and reserved seats sold at about half the usual charge for parlor cars, it would serve to supply a want which is now manifesting itself.

SPRINGFIELD, ILL.

The points of interest here to railroad men are the locomotive shops of the Wabash Railway, which are kept in admirable order by Mr. Johann, the Master of Machinery. He has 82 engines under his charge, which furnish the motive power for 440½ miles of road.

The evil of the diversity or want of uniformity in the construction of rolling stock and equipment was very strikingly illustrated on the Wabash road when Mr. Johann was placed in charge, probably not from any fault of his predecessor, but because those higher in authority paid no heed to such matters. The engines, as usually happens on new lines, were bought from different makers, and there were on the road 26 different kinds of driving-wheel springs, 15 kinds of cross-heads, 13 of driving-boxes, 17 sizes of pilots, 8 grate bars, 8 tender trucks, 6 engine trucks, 6 check valves and 3 sizes of tender hose. These Mr. Johann has systematized in the ordinary course of repairs, so that now he has only two kinds of driving springs, three cross-heads, three driving boxes, two pilots, one grate-bar, one tender truck, one engine truck, one check valve and one size of tender hose. The evil resulting from the great diversity in the sizes and patterns of these parts and the saving which would result from the use of uniform patterns no one without practical knowledge of the subject can know. Discussion of the subject has, however, attracted attention to the desirability of uniformity, and there is an evident disposition to adopt and conform to some system which will secure the much-desired and much-needed end.

Mr. Johann has given the subject of boiler construction a good deal of attention, and has made a design which he proposes to use in rebuilding some of his superannuated engines. The outside shell is straight on top and 52 in. in diameter. The crown-sheet is arched transversely and is stayed to the outer shell by stay-bolts, and without crown-bars. The arching of the crown-sheet permits the stay-bolts to be placed very nearly at right angles to the inner and outer plates, and thus in great measure obviates one of the objections to the use of stay-bolts for this purpose and to this method of staying boilers. The crown-sheet is inclined downward from the flue-sheet, so that in case of low water the front end only is exposed to the fire—a plan that cannot be too highly recommended. The end plates are to be stayed with "gusset" stays or braces, made of plate iron, and attached with angle iron to the heads and to the outside shell of the boiler. The latter will have 162 2-in. tubes 11 ft. 6 in. long.

The grate surface is..... 16.4 sq. ft.
" fire box "..... 107.1 "
" flue "..... 975 "

The total heating surface is..... 1,082.1 sq. ft.

The boiler will be all steel.

A novel arrangement is used for washing out boilers. It consists of a tube placed transversely in the under side of the boiler with nozzles directed backward, through which a stream of water is forced by a force-pump, which is used for a fire engine about the shops.

Among the various locomotives on this road is one of Mr. Wm. Mason's double-truck engines with a single boiler. It has four driving-wheels and a six-wheeled truck under the tank. This engine seems to have been without friends on the road after it was received. It was used for a short time, and then laid up for a year or two and regarded as a failure. Mr. Johann, however, overhauled it and put it to work. Some trouble was found with the joints in the steam and exhaust pipes. These were altered and the engine put to work on the road. The engine then hauled from four to six cars more than the ordinary eight-wheeled engine. The weight on the driving-wheels is 56,000 lbs., or 14,000 lbs. per wheel, which is excessive; but with a six-wheeled driving truck the evil of this would be obviated. After working a short time on the road it was put at work switching in the East

St. Louis yard, where it had been for two years until recently it was taken into the shop again for repairs.

The works of the Springfield Iron Company are located in the suburbs of the city. The products of this establishment have heretofore been iron rails, fish-plates and bolts. The rails have been manufactured chiefly from old rails re-rolled. These are re-heated in Siemens-Martin gas furnaces, a process which was first applied to the manufacture of iron in this country in this establishment. The old mill, which has been in operation for a number of years, approximates to an L shape and is 300 x 250 x about 75 feet. This mill has 16 gas producers, with heating furnaces, rolls and other machinery of a complete rolling mill. Every labor-saving appliance which diminishes the cost of production has been adopted. Some of these are very interesting to a person not familiar with rolling-mill machinery. One of these, the "Maharg charger," for putting the piles of scrap iron into the furnace, may be described as an enormous shovel, similar to those used by our grandmothers in charging their old-fashioned bake ovens with bread. The piles of scrap to be handled are so heavy that the work was formerly very severe. With the new appliance it is handled as it were by slight of hand.

A great deal of severe work was formerly expended in withdrawing the heated mass of iron from the furnaces. This is now done by a steam "pull-out," which is simply steam power exerted on the end of a chain, which is fastened to the mass of iron by suitable tongs and pulleys.

This mill has recently been employed in rerolling the lighter patterns (about 40 lbs. per yard) of rails, which are now made in double the ordinary lengths. In October about 3,500 tons of such rails were rerolled.

In a separate building is the machine shop, which is fully equipped with all the necessary machinery for turning rolls and repairing the machinery of the mill. A part of the building is employed as a bolt and nut shop, where the bolts and nuts are made and cut.

This company is now erecting the plant for manufacturing steel rails and plates. The process to be employed is that known as the Siemens-Martin. The furnaces which are to be erected will have Pernot's revolving bottom, which could not be described without illustrations and more space than can be given to it here.

A new bar mill has just been completed, which is intended to be worked on either steel or iron bars. The building is 106 x 295 ft., and has two trains of rolls, one 12 in. and the other 16 in., with three Siemens heating furnaces. This mill is intended to be employed in manufacturing bars and fish-plates, and is equipped with suitable machinery for cutting and punching the latter.

Near the last-named building is the new steel-melting house, which is 90 x 137 ft., and in which the Pernot Siemens-Martin furnaces will be erected. Opposite this is the new blooming mill, 100 x 200 ft. This building is not yet finished. It will be occupied by blooming mills and as a plate mill.

The new plant for the manufacture of steel was designed by Mr. Alexander L. Holley, and its erection is under the superintendence of Mr. Phineas Barnes, who intend that it shall have all the latest improvements known in the manufacture of steel.

This establishment is very favorably located for manufacturing at a low cost. The coal used is taken out from a mine on the premises, and Springfield is within easy shipping distance, and with abundant facilities for reaching the Lake Superior iron regions at the north, the Iron Mountain region in Missouri or the mines of Alabama and Tennessee at the south, and withal it is in the centre of the most fertile part of the Great West and in the focus, as it were, of its immense railroad system.

ST. LOUIS.

One of the first things which comes to the notice of a visitor to St. Louis, if he is interested in railroads, is that a very fierce competition is waging between different lines. The principal ticket offices are nearly all clustered around, or near, the Planters' Hotel, and here placards are displayed, announcing \$10 TO NEW YORK and similar low rates to other points. Another significant sign which is seen here, and at other places in the West, is "— & —, Ticket Brokers," a business which the quarrels of the railroads have the tendency to develop into a permanent and regular occupation.

An apparent peculiarity about the railroad traffic of St Louis is that nearly all the trains on the different roads terminating there seem to leave about the same hour in the evening and in the morning, and as they all leave from the Union Depot, that place becomes the scene of a good deal of life and activity. The arrangement of the depot, of which we published plans some time ago, is a little peculiar. The main building is long and comparatively narrow. The tracks extend alongside the building and parallel to it. From about the centre of the building a transverse covered way extends across the tracks. The trains are made up so that the ordinary cars are on one side of this way and the sleeping cars on the other. With half a dozen or more trains made up here and each receiving its passengers, it is a sight which any one will remember. Although the arrangement is in many ways very convenient, it has the one objection that in backing up the front part of the train to couple on to the sleeping cars, the passengers between are exposed to a good deal of danger, and it is only by the greatest watchfulness that accidents can be avoided.

At the shops of the Iron Mountain road, at Carondelet (now South St. Louis), there is not much to note. The rolling stock of this line has been worked to its full capacity, and the men are kept busy on repairs. The new shops at De Soto are not yet stocked with machinery, and, therefore, all the work for the northern portion of the line is done at

Carondelet. There is not much that is new to report of them. Mr. Haynes is using a new apparatus for oiling locomotive cylinders, which we will illustrate soon, and therefore defer description. Wrought-iron brake shoes are used almost exclusively on this road, and are forged under dies on a steam hammer. The opinions of master mechanics are curiously vague on this subject of brake shoes. Some of them assert that wrought shoes will not hold as well as cast-iron, that they flatten the wheels, and that they become hardened by the friction on the latter. Others say that they can see no difference in the holding power of cast and wrought iron, that the latter does not flatten wheels more than the former, and that the hardening of the shoe by friction is a myth. Surely all these questions are capable of conclusive test, and need not be the subject of that very vague mental process which at conventions is called "my experience." The facts relating to different kinds of brake shoes are worth knowing, and could be clearly established by a little intelligent experiment. In some future mechanical millennial period railroad companies will doubtless learn that it would be true economy to co-operate and refer all such questions to the ablest specialists for investigation and experiment, and that it will be profitable to be liberal in expending money for such purposes.

At the Western Iron Boat-Building Company's yard at Carondelet there is a good deal of activity. The company has contracts for and has now in progress three iron survey boats for the United States officers. One of these has been launched. They are 55 ft. long by 10 ft. beam, with side wheels 9 ft. 3 in. in diameter, with double oscillating cylinder engines, the cylinders being 12 x 20 in. The boilers are of the locomotive pattern. The boats will draw 18 in. water.

There is also in progress at this yard an enormous iron snag boat, which is to be 190 ft. long x 62 ft. beam. It is an immense flat-bottomed affair, with what might be called a bifurcated bow—that is, the bow is divided longitudinally by an opening in the centre 8 ft. wide and 64 ft. long, giving the front of the vessel a forked shape. It is intended to run the boat so as to get the snags to be removed into this opening, when they will be raised up by suitable derricks, and then cut to pieces by saws driven by an engine. This boat is to have side wheels.

Contracts have also been made for the construction of two other smaller snag boats, 170 ft. long, with stern wheels, but work on these has not yet been commenced.

This establishment is under the charge of Mr. Theodore Allen, formerly of New York.

It is not generally known that the article, "Are Narrow-Gauge Roads Economical?" which was published in the December number of *Scribner's Monthly*, was written by Mr. L. M. Johnson, the General Manager of the Cairo & St. Louis narrow-gauge road. Compared with an extravagant article in favor of narrow-gauge, published in a preceding number of the same periodical, the last article is refreshing in its clear and very temperate statement of facts, whereas the first was a mass of extravagant assertions and the grossest misrepresentations. The following conclusions of Mr. Johnson might afford a suitable subject for discussion at the next narrow-gauge convention. He says:

"Let any man who is seeking for investment of capital in railway construction consult those who have operated both classes of roads, and he will be advised, almost invariably that he will save very little in cost of construction, equipment and operation, and that he will lose business from competition if he adopts the narrow gauge. My experience in the management of both classes of roads does not, therefore, lead me to conclude that the multiplication of narrow-gauge roads will cheapen transportation until the standard-gauge roads are suppressed, and even then the saving will be very much less than is usually claimed."

The cost of transfer of freight from the narrow to the wide-gauge cars is stated by Mr. Johnson to be on his road 3 cents per 100 lbs., or \$4.80 per car-load of 16,000 lbs. The box-cars weigh 10,500 lbs., and carry 16,000 to 17,000 lbs. of load, a proportion of a little over 1½ to 1, which is slightly exceeded by the carrying capacity of the cars on the Chicago, Burlington & Quincy Railroad. It should be stated, though, that the above cost of transfer includes a short haul on wagons, and that if the cars were placed side by side, the cost would be diminished perhaps one-half. Even this would be equal to 80 cents per ton, which on an ordinary railroad represents the cost of carrying that quantity of freight 60 miles.

But this is not all of the evil. Mr. Johnson says that people will nearly always give the preference to a line on which there is no trans-shipment, which makes it necessary at competing points either to give lower rates or lose the freight.

NEW PUBLICATIONS.

A History of the Growth of the Steam Engine. By Robert H. Thurston, A.M., C.E. New York: D. Appleton & Co. 12mo, pp. xviii, 490.

In this work the most important notes relating to the conception and development of the steam engine are collected and carefully arranged, leading the reader from the *Period of Speculation*, in which the power of steam was recognized, to the *Period of Application*, made notable by the achievements of the Marquis of Worcester, Savery, Papin and other well-known inventors. The work then treats of the *Development of the Modern Type of Steam Engine* by Newcomen and his co-laborers, leading naturally to the *Development of the Modern Steam Engine*, by Watt and his contemporaries. The *Second Period of Application to Steam Locomotives and Ship-Propulsion* is then considered, leaving the steam-engine waiting for the *Period of Refinement*, which has produced the prime movers in use at the present time. The developments of the different periods are

admirably illustrated, sketches of the most prominent inventors and inventions being given, and there is probably no other work that contains such a complete outline of the history of the steam engine, so that it is well adapted both for general reference and for elementary instruction.

In the concluding chapters there is a history of the growth of the science of thermo-dynamics, which has played a very important part in the development of the steam engine, and the author applies the principles of the science to possible improvements, which may increase the efficiency of the future steam engine from 10 per cent. to 50, by which change the consumption of coal may be reduced from two pounds per horse-power per hour to $\frac{1}{10}$ of a pound. This is a subject that is well worth the attention of our engine-builders and designers, who cannot fail to be interested in the concluding portions of the book.

The Relative Proportions of the Steam Engine. By William D. Marks. Philadelphia: J. B. Lippincott & Co., 1879. 12mo, pp. 161.

This little work contains a course of lectures delivered to the students of dynamical engineering in the University of Pennsylvania; and its aim, as stated in the preface, is to establish simple rules for proportioning the parts of steam engines, which rules shall be general in their character, as opposed to what the author calls "practical (i) rules, the result of observation of successful construction."

The lectures are chiefly a compilation from the works of other writers, with a re-arrangement of the formulæ in many instances, and the introduction of illustrative examples. Most of the parts of the steam engine are taken up in detail, and rules for determining their proportions are established. Thus, rules are given for the proper thickness of cylinders, cylinder heads, dimensions of cylinder-head bolts, thickness of steam chest, diameter of piston-rod, connecting-rod, shaft, crank-pin, proportions of crank, etc. Many of the rules deduced are general in their character, but in numerous instances the proportions are fixed by the practical methods of which the author speaks rather slightly in his preface. In view of some of the results given by the general rules, however, it is probable that the practical method could have been advantageously followed more frequently. This latter remark must be qualified by the statement that the practice quoted by the author is, in some instances, more curious than useful, and it is probable that an engine designed in strict accordance with the rules given in this work would be, to say the least, peculiar. This may be illustrated by some references to the work in question.

The statement on page 14, that engineers are beginning to understand "the inability of a steam-jacket to do more than keep the cylinder warm, without actually communicating any appreciable amount of heat to the inclosed steam," is so paradoxical that it might properly have been supported by some experimental proof. It seems probable, however, from the statement that the author considers the steam jacket of but little value.

The thickness of a cast-iron steam cylinder, according to the author, page 19, should never be less than $\frac{1}{4}$ -in. "under any circumstances," in spite of which dictum, small cylinders of much less thickness, with jackets cast around them, will probably be produced and run successfully, as of yore.

On page 19 is given a rule for the thickness of cylinder-head, which, when compared with a rule for the thickness of cylinder, shows the following curious results:

If the steam pressure equals 100 pounds, the cylinder-head and cylinder should have the same thickness.

If the steam pressure is greater than 100 pounds, the cylinder should be thicker than the cylinder-head.

If the steam pressure is less than 100 pounds, the cylinder-head should be thicker than the cylinder.

From all of which the author concludes that

"A good practical rule for engines in which the pressure does not exceed 100 pounds per square inch is to make the thickness of the cylinder-heads one and one-fourth that of the steam-cylinder walls."

It will be observed that in treating of the cylinder, formulæ are devised, from a consideration of the strength of the cast iron, and it is a matter of surprise that the author, who considers cast iron good enough to withstand steam pressure, finds himself obliged, page 86, to neglect "cast iron as being unsuitable for cranks," and while making the admission, page 95, which will doubtless be news to many engine-builders, that "cast-iron cranks are frequently used in the cheaper forms of engines," dismisses the subject with the remark that "The proportions of cast-iron cranks depend to a great extent upon the character of the iron used. Formulae can hardly be applied to so uncertain a material as cast iron."

After having discussed the proper proportions of piston-rods, with reference to the strains to which they are subjected, the author passes to a consideration of the proportions of the cross-head, and informs the reader (page 44) that they "are, with a few exceptions, rather a matter of experience and good taste than of calculation." This, however, is true, in the case of some designers, of every part of the steam engine, and appears to be the precise mode of procedure, against which the reader is warned in the preface. The remarks on the proportions of the crank are of about the same character, the most important particulars being left to the taste and experience of the designer. The subject of shafts, however, is treated analytically, and from the final formulæ, the author concludes that in the case of an engine with a cylinder 32 in. in diameter and of 4 ft. stroke, making 40 revolutions a minute, and developing 156 horse-power, carrying a 35-ton fly-wheel between bearings 84 in. from centre to centre, the proper diameter for the wrought-iron shaft is 14.6 in. Perhaps it would have been

better if this proportion, also, had been left to the taste and experience of the designer.

These examples could be extended considerably, did space permit. Those that have been given, however, serve to show the scope of the work, and to call attention to some points that seem worthy of criticism. It is to be remembered that true theory and practice are not antagonistic, and that no theoretical rule which conflicts with the results of successful practice is of much value. Whether the education of engineers can best be promoted by a study of the work under consideration, is perhaps open to question.

Wrinkles and Recipes, compiled from the Scientific American. Edited by Park Benjamin, Ph. D. New York: John Wiley & Sons, 1878. 12mo, pp. 300.

The thirteenth edition of this work has been considerably enlarged, and rendered more useful by the insertion of a good index. One of the most valuable additions is a temper scale, in colors, showing the proper color for tempering tools of various kinds, verified by the practice of some of the most prominent tool-makers in this country.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows: Cleveland & Pittsburgh, annual meeting, at the office in Cleveland, O., Jan. 1. Transfer books closed Dec. 2. Boston & Maine, annual meeting, in the City Hall at Lawrence, Mass., Dec. 11, at 10 a. m.

Dividends.

Dividends have been declared as follows: Iowa Falls & Sioux City (leased to Illinois Central), 1 per cent., semi-annual, payable Dec. 2.

New York, New Haven & Hartford, 5 per cent., semi-annual, payable Jan. 2. Transfer books closed Dec. 4.

Northern (New Hampshire), $\frac{1}{2}$ per cent., semi-annual, payable Dec. 2.

Foreclosure Sales.

The Bridgeton & Port Norris road was sold in Bridgeton, N. J., Nov. 30, under a decree of the Court of Chancery of New Jersey, and bought for \$10,000 by Thomas H. Dudley, for account of the bondholders. The road is 20 $\frac{1}{2}$ miles long, from Bridgeton to Bay Side View, and its bonded debt was \$400,000. It has been in possession of a receiver four years and has barely earned its running expenses.

The Hackensack Extension road was sold recently under foreclosure of the first mortgage and bought in for account of the bondholders for \$20,000. The road is nine miles long, from Hackensack, N. J., to Hillsdale, and the amount of the mortgage was \$700,000. It was consolidated several years ago with the Hackensack & New York Company and the New Jersey & New York Company formed. The consolidation has now been broken by the foreclosure of the separate mortgages. The Hackensack & New York road has already been sold and reorganized.

Railroad Claim Agents' Association.

This association met in annual convention at the Planters' Hotel, St. Louis, Dec. 4, with a good attendance from all parts of the country. Mr. E. Darragh, of the Reading road, presided, and Mr. N. R. Adriance was Secretary. After electing permanent officers and the usual routine business, the first day's session was devoted to discussions on the best methods of settling claims and on detection of freight thieves.

Southern Railway & Steamship Association.

The annual meeting was held at the Kimball House, Atlanta, Ga., beginning Nov. 26. The following companies were represented:

Central of Georgia, W. M. Wadley, President; W. Rogers, General Superintendent.

Southwestern Railroad, W. G. Raoul, Superintendent.

Savannah, Griffin & North Alabama, W. M. Wadley, President.

Boston & Savannah steamships, A. A. Nickerson, Boston agent; E. C. Richardson, Savannah agent.

Ocean Steamship Company, W. M. Wadley, President; Geo. Yonge, agent.

Philadelphia & Savannah steamships, W. L. James, General Agent.

Baltimore & Savannah steamships, J. B. West, agent.

Macon & Brunswick, E. A. Flewelling, Director; G. W. Adams, General Superintendent.

Old Dominion Steamship Company, W. H. Stanford, General Freight Agent.

Georgia Railroad & Banking Company, E. P. Alexander, President; E. R. Dorsey, General Freight Agent.

Macon & Augusta, E. P. Alexander.

South Carolina Railroad Company, J. H. Fisher, Receiver; S. S. Solomon, General Superintendent.

Boston & Charleston steamships, B. D. Hasell, General Agent.

New York & Charleston steamships, G. W. Quintard, President.

Clyde steamship lines, W. P. Clyde.

Baltimore & Charleston steamships, E. Fitzgerald, agent.

Port Royal & Augusta, D. C. Wilson, President; R. G. Fleming, Superintendent; J. S. Davant, General Freight Agent.

Baltimore, Norfolk & Boston steamships, V. D. Gruber, agent.

Providence & West Point steamships, Wm. Plummer, agent.

Charlotte, Columbia & Augusta, J. B. Palmer President; Sol Haas, General Freight Agent; T. M. R. Talcott, General Superintendent.

Wilmington, Columbia & Augusta, and Wilmington & Weldon, R. R. Bridgers, President; J. H. Divine, General Superintendent; A. Pope, General Freight Agent.

Carolina Central, A. H. Roberts, General Manager; F. W. Clark, General Freight Agent.

Atlanta & Charlotte Air-Line, G. J. Foreacre, General Manager; R. S. Carpenter, General Freight Agent.

Richmond & Danville, A. S. Buford, President; T. M. R. Talcott, General Superintendent; Sol Haas, General Freight Agent.

Western & Atlantic, J. E. Brown, President; W. MacRae, General Manager; R. A. Anderson, General Freight Agent.

Memphis & Charleston and East Tennessee, Virginia & Georgia, J. R. Ogden, General Freight Agent; T. S. Davant, Assistant General Freight Agent.

Mobile & Girard, W. M. Wadley, President. Montgomery & Eufaula, A. J. Lane, Receiver; B. Dunham, General Freight Agent.

Western Railroad of Alabama, Cecil Gabbett, General Manager; S. D. Hubbard, Jr., General Freight Agent, Atlanta & West Point, L. P. Grant, Superintendent; A. J. Orme, General Freight Agent.

Selma, Rome & Dalton, M. Stanton, General Superintendent; R. Knight, General Freight Agent.

Louisville & Nashville and South & North Alabama, E. B. Stahlman, General Freight Agent.

Atlantic & Gulf, H. S. Haines, General Superintendent; J. L. Taylor, General Freight Agent; C. D. Owens, General Agent.

Brunswick & Albany, C. L. Schlatter, Chief Engineer and General Superintendent.

Nashville, Chattanooga & St. Louis, E. W. Cole, President; G. R. Knox, General Freight Agent.

Philadelphia and Richmond and Norfolk Steamships, J. W. McCarrick, agent.

Baltimore & Richmond Steamboat Company, Richmond & York River Railroad, Baltimore & Wilmington Steamship Line, Reuben Foster, General Manager.

Savannah & Charleston, C. S. Gadsden, General Superintendent; C. S. Boynton, General Freight Agent.

Northeastern of Georgia, J. M. Edwards, General Superintendent.

Savannah River steamboats, John Lawton, Manager.

Cairo Short Line, A. S. DePew, General Freight Agent.

Cairo & Vincennes, N. S. Pennington, General Freight Agent.

Jeffersonville, Madison & Indianapolis, R. W. Geiger, General Freight Agent.

Chicago & Eastern Illinois, R. Forsyth, General Freight Agent; W. H. Knight, Agent.

St. Louis, Iron Mountain & Southern, W. R. Arthur, General Manager; S. Frink, General Freight Agent.

Florida Central, W. M. Davidson, General Freight Agent.

Chesapeake & Ohio, W. C. Wickham, Vice-President; B. S. Fitch, General Freight Agent.

Virginia Midland, Rudolph Fink, Assistant Superintendent; F. T. Hawks, General Freight Agent.

Savannah & Memphis, W. S. Greene, General Superintendent.

Evansville & Terre Haute, John E. Martin, President; E. S. Babcock, Jr., General Freight Agent.

Belleville & Eldorado, C. H. Crosby, General Freight Agent.

St. Louis & Southeastern, R. G. Butler, General Agent.

Evansville, Terre Haute & Chicago, E. S. Babcock, Jr.

Virgil Powers, General Commissioner, John B. Peck, General Agent; M. S. Freeman, Clearing Agent, C. A. Sindall, Secretary of the Association.

After the usual routine business an adjournment was had until evening to receive the report of the Committee on Rates and Divisions.

At the evening session Mr. J. H. Raymond, Secretary of the Western Railroad Association, addressed the meeting at length, setting forth the work of that Association and the saving of money to companies through its agency. He asked the co-operation of Southern companies.

The second day was devoted chiefly to committee work. The Committee on Rates and Divisions made a majority and a minority report, both of which were rejected, and finally submitted a compromise report which was accepted. The chief part of it is as follows:

Section 1. That to and from Charleston, Savannah, Port Royal, and all other coast points south of Wilmington, rates from Western points north of the Ohio river on Western products be higher via Green Line than via Eastern lines to the extent of 10 cents per 100 pounds.

It is understood, as to Sec. 1, that all products peculiar to the West, and products common to both East and West, after having been taken out of classes and made special, the rates by Green Line to coast points shall be 10 cents per 100 lbs. higher than via Baltimore, and that rates on products peculiar to the East shall be higher by Green Line to the extent of—

1.	2.	3.	4.	5.	6.
60	50	40	30	20	20

2. Green Line rates from Louisville, Henderson, Fillmore, Columbus, Ky., and Hickman, on Western products may be the same as via Baltimore, and from Aurora, Jeffersonville, Madison, Evansville, Cairo, to be 3 cents per 100 pounds higher than via Baltimore from points above named; it being understood that the Eastern lines concede this business to the Green Line.

3. Rates to Athens are to be the same as Macon.

4. The rates to Augusta and other interior Green Line points on Western products should be 10 cents per 100 pounds higher by coast lines than by Green Line, but on articles common to both, to interior Green Line points, the rates should be the same by both. On articles peculiar to the East the rates shall be at least 10 cents per hundred pounds higher by the Green Line than by the Eastern lines.

5. To and from all Western points on or over the Atlanta & Charlotte Air-Line, east of Spartanburg, and on or over the Charlotte, Columbia & Augusta Railroad, including Columbia and Wilmington, the rates via Green Line to be higher than via Baltimore, by

1.	2.	3.	4.	5.	Specials.
45	40	35	30	25	20

except that to Columbia the difference on specials shall be 10 cents per 100 pounds.

6. The rates from Western points to Columbia via Green Line to be 10 cents per 100 pounds higher than via Baltimore on the same articles, and rates on common articles to be the same from Western points via Green Line and via Baltimore.

7. It is understood that the Eastern lines will maintain the rates on Western products to Charleston and coast points at not less than the same figures as now charged by the Green Line to Augusta from the same points.

8. A committee shall be appointed to have entire charge of and making of all rates (except that Green Line can at any time advance its rates as it desires, and, in case of so advancing, it shall also have the privilege of returning to the rates from which the advance was made). This committee to be composed of ten members and the General Commissioner as chairman, five members to be appointed from lines north and west of Atlanta, and five to be appointed from lines south and east of Atlanta.

9. The Green Line to carry only such cotton as used for manufacture in the West.

10. All such articles as are common to both the East and the West are to be taken out of the classification and put in specials, so that the same rate can be worked by both lines, from the East and West respectively, upon such articles, except as heretofore provided.

G. J. FOREACRE,
T. M. R. TALCOTT,
GEO. W. ADAMS,
WM. MACREA,
E. F. ALEXANDER,
W. G. RAOUl.

While we cannot approve of all the features proposed by

the foregoing report, we will, for the sake of an adjustment, accept its terms.

E. B. STAHLMAN,
GEO. R. KNOX.

This was accepted as a compromise between the Green Line roads and the Southeastern railroad and steamship lines.

The Committee on Classification made a report, which called forth a long discussion, the chief objection being that many articles were lowered in class, making a practical reduction in rates. It was finally adopted, with some changes.

On the third day the Association listened to an address from Major B. E. Crane, President of the Atlanta Board of Trade, setting forth some grievances of the merchants, especially as to discrimination in rates.

The old officers were then reelected for the ensuing year. Some minor and routine matters were then considered.

The Committee on Rates provided for by the report above was then chosen. The committee as selected consists of Virgil Powers, General Commissioner, Chairman; E. B. Stahlman, G. R. Knox, C. H. Crosby, R. A. Anderson and E. R. Dorsey for the Green Line roads; Sol. Haas, Wm. Plummer, A. Pope, W. G. Raoul, B. D. Hasell, for the Southeastern lines. This committee is to meet in Nashville, Dec. 12.

The association then adjourned.

Southern Association of General Passenger & Ticket Agents.

This organization was formed at a meeting held in Atlanta, Ga., Nov. 26, in pursuance of the recommendation of the General Passenger & Ticket Agents' Association that district associations be formed to control local matters. There were present the following:

C. P. Atmore, Louisville & Nashville; W. L. Danley, Nashville, Chattanooga & St. Louis; B. W. Wrenn, Western & Atlantic; John W. Mass, St. Louis & Southeastern; T. S. Davant, Memphis & Charleston; John R. Ogden, East Tennessee, Virginia & Georgia; Ray Knight, Selma, Rome & Dalton; Conway R. Howard, Chesapeake & Ohio; John R. McMurdo, Richmond & Danville; A. Pope, Wilmington, Columbia & Augusta; E. Young, Baltimore & Potomac; W. J. Houston, Atlanta & Charlotte Air Line; E. R. Dorsey, Georgia Railroad; J. S. Davant, Port Royal; S. C. Boylston, Savannah & Charleston; E. H. Smith, Central Railroad of Georgia; James L. Taylor, Atlantic & Gulf; R. M. Davidson, Florida Central; A. J. Orme, Atlanta & West Point; S. C. Hubbard, Western of Alabama; Reas Campbell, Montgomery & Eufaula; S. E. Carey, New Orleans & Mobile; H. M. Drane, Macon & Brunswick; E. O. McDonald, Atlantic, Gulf & West India Transit; L. F. Morrison, Alabama Great Southern.

Col. Henry M. Drane was called to the chair permanently, Mr. Conway R. Howard having presided at the preliminary organization. It was resolved to meet in Atlanta twice a year, on the second Wednesday in April and October. A constitution and rules were adopted.

After the organization and on the second day rates and division of business on Florida passenger travel were considered and adjusted, a considerable reduction in rates being made. Texas business, especially emigrant rates, also came up for discussion, and a committee was appointed to adjust them. The association finally adjourned to meet in Atlanta in April.

ELECTIONS AND APPOINTMENTS.

Baltimore & Cumberland Valley.—At the annual meeting in Hagerstown, Md., Dec. 3, the following directors were chosen: John M. Hood, Alexander Rieman, C. W. Humrichouse, John Welty, George W. Harris, D. J. Foley. The board elected Alexander Rieman, President; John S. Harden, Secretary and Treasurer.

Boston, Revere Beach & Lynn.—Mr. John A. Fenno has been appointed General Ticket Agent, in place of D. Loring, resigned.

Burlington & Missouri River in Nebraska.—Mr. George B. Harris is appointed Purchasing Agent, with office in Omaha, Nebraska.

Burlington, Cedar Rapids & Northern.—Mr. John C. Fox, late Superintendent of Telegraph and Chief Train Dispatcher, will hereafter be Master of Transportation. Office at Cedar Rapids, Ia.

Chesapeake & Ohio.—Mr. Samuel G. DeFord, Jr., heretofore General Northwestern Agent, will be known hereafter as General Western Agent, and will, in addition to his previous work, have charge of the territory heretofore under the charge of P. P. Young, General Southwestern Agent, who has resigned. Office in Cincinnati.

Chicago & Southeastern.—The board of directors of this new Indiana company is as follows: Wm. F. Singleton, John Adams, Henry H. Cooley, Reuben P. Conger, Allen Gregory, Wm. Foster, Milton L. Huston, John Peacock, Abel D. Straight.

Cleveland, Columbus, Cincinnati & Indianapolis.—Mr. G. M. Beach has been appointed Roadmaster of the Indianapolis Division, in place of A. G. Wright, resigned. Mr. Beach has been the company's service for many years.

Decatur & State Line.—The directors of this company (recently elected) are as follows: P. R. Chandler, George M. Dunlap, J. W. Jewett, H. H. Porter, Faust Plumb, Wm. Reddick, Julius Rumsey. The board has elected George M. Dunlap, President. Mr. Dunlap was lately chosen a director of the Wabash, which is said now to control this company.

Dunkirk, Allegheny Valley & Pittsburgh.—At the annual meeting in Albany, N. Y., Dec. 3, the following directors were chosen: S. F. Barger, Rassel Brown, Chauncey M. Depew, Joseph Harter, David H. Mitchell, Stephen M. Newton, Augustus Schell, J. Condit Smith, William H. Vanderbilt, William K. Vanderbilt, Cornelius Vanderbilt, F. W. Vanderbilt, E. D. Worcester.

Eastern, of Long Island.—This company was organized Nov. 30 by the election of the following directors: Isaac D. Barton, Robert Farley, Jr., P. H. Foster, Charles Hewlett, Isaac Harris, Isaac Horstall, John E. Ireland, Martin G. Johnson, George C. Martin, S. S. Rhines, Alfred Sully, James Van Sicklen, Charles S. Wood. The board elected officers as follows: President, Isaac D. Barton, New York; Vice-President, Martin G. Johnson, Jamaica, N. Y.; Secretary, Alfred G. Chapin, Brooklyn, N. Y.; Treasurer, Alfred Sully, Brooklyn, N. Y.

Grand Rapids & Indiana.—Mr. E. A. Treadway has been appointed General Agent, with headquarters at Grand Rapids, Ind. This is a new office.

Hannibal & St. Joseph.—The officers of this company, since the recent election, are: President, Wm. Dowd, New York; Vice-President, M. P. Bush, New York; Secretary, John A. Hilton, New York; Treasurer, W. J. Hilton, Hannibal, Mo.; General Manager, John B. Carson, Hannibal; General Freight Agent, W. H. McDowell, Hannibal; General Passenger and Ticket Agent, T. Penfield, Hannibal; Auditor,

C. W. Winslow, Hannibal; Superintendent, W. R. Woodward, Hannibal; Chief Engineer and Purchasing Agent, T. L. Dunn, Hannibal; Superintendent of Motive Power and Cars, T. G. Gorman, Hannibal; Land Commissioner, T. D. Price, Hannibal.

Housatonic.—Mr. L. B. Stilson has been chosen Secretary, and will also act as Superintendent for the present. He has been a conductor on the road for a long time.

Huntingdon & Broad Top.—Mr. J. P. Donaldson has been appointed Secretary, Treasurer and Agent for the Trustee, in place of J. P. Aertsen, deceased.

Ithaca, Auburn & Western.—At the annual meeting in New York, Dec. 2, the following directors were chosen: A. S. Barnes, J. H. Dunning, G. W. Farlee, Wm. H. Guion, S. S. Hewitt, Homer N. Lockwood, H. R. Low, J. E. Miller, George Opdyke, W. S. Opdyke, Frederick T. Peet, Herman Strassburger, Henry Whelan.

Louisville & Nashville.—Mr. J. M. Culp has been appointed Assistant General Freight Agent, with office in Louisville, Ky.

New York & New England.—At the annual meeting in Boston, Dec. 3, the following directors were chosen: Samuel A. Carlton, John Goldthwait, Wm. T. Hart, Lewis Hecht, Thomas Nickerson, James Sturgis, Boston; Joseph K. Baker, Dennis, Mass.; George M. Rice, Worcester, Mass.; Jesse Metcalf, Gorham P. Pomeroy, Providence, R. I.; George S. Moulton, Windham, Conn.; Frederick J. Kingsbury, Waterbury, Conn.; Legrand B. Cannon, R. Suydam Grant, James Roosevelt, New York.

New York, Brooklyn & Sea Beach.—The following officers have been elected: President, E. T. Backhouse; Vice-President, W. H. Inman; Secretary and Treasurer, S. J. Murphy.

Omaha & Northern Nebraska.—The officers of this company, successor to the Omaha & Northwestern, are: Francis Smith, President; John A. Horbach, Vice-President; H. W. Yates, Secretary; Herman Kountze, Treasurer; August Kountze, General Manager; J. E. House, Chief Engineer and Superintendent; J. Budd, Cashier and General Freight and Ticket Agent.

Ontario Southern.—Mr. James E. Briggs has been appointed General Manager, in place of C. J. Pusey, with office at Newark, Wayne County, N. Y. Mr. Briggs is also Auditor and General Passenger and Freight Agent.

Owensboro & Nashville.—Mr. Charles K. Needham has been appointed Superintendent, in place of D. F. Whitecomb, resigned. Office at Owensboro, Ky.

Pekin, Lincoln & Decatur.—The following circular is dated Dec. 1:

"Mr. John S. Cook having resigned his position as General Manager of this railway, the office is hereby assumed and his duties are assumed by the following named officers, whose appointments take effect from this date: G. R. Cobleigh, General Superintendent; G. L. Bradbury, General Freight Agent.

Pittsburgh & Connellsburg.—At the annual meeting in Pittsburgh, Pa., Dec. 2, the following directors were chosen: John King, Jr., Mendes Cohen, Hugh Sisson, Charles Webb, Robert Garrett, Baltimore; W. S. Bissell, William Baldwin, Charles Donnelly, John D. Scully, Henry Lloyd, Pittsburgh; W. H. Koontz, Somerset, Pa.; W. H. Marke, Greensburg, Pa. The board reelected John King, Jr., President; J. B. Washington, Secretary; Charles Donnelly, Treasurer. The road is leased to the Baltimore & Ohio.

Pittsburgh, Cincinnati & St. Louis.—Mr. J. C. Tucker has been appointed General Western Passenger Agent, with office in Chicago, succeeding Mr. E. Gallup, who has gone to the Boston & Albany. Mr. Frank Van Duzen is Mr. Tucker's assistant, and Mr. C. S. Burton is City Ticket Agent.

Quebec, Montreal, Ottawa & Occidental.—Mr. C. A. Scott is now General Superintendent. Mr. C. A. Stark has been appointed General Traffic Manager, and has his office at No. 13 Place d'Armes, Montreal, P. Q.

Railroad Claim Agents' Association.—At the annual convention in St. Louis, Dec. 4, the following officers were chosen: President, E. Darrah, Philadelphia & Reading; Vice-Presidents, Samuel Ross, Pittsburgh, Cincinnati & St. Louis; A. L. Stokes, Kansas Pacific, and A. H. Kelley, Wabash; Secretary, N. R. Adriance, Cincinnati, Hamilton & Dayton.

Red River & Mississippi.—At the annual meeting in Shreveport, La., Nov. 23, the following directors were chosen: N. Gregg, J. J. Horan, A. B. George, Wm. H. Wise, T. H. Morris, J. G. McWilliams, S. B. McCutchen, J. B. Durham, J. M. Hollingsworth, R. H. Howell, J. M. Foster, R. N. McKellar, S. J. Ward, Raphael Kuhn, R. H. Lindsay.

Richmond & Allegheny.—The directors of this company, which proposes to turn the James River & Kanawha Canal into a railroad, are: H. C. Parsons, George S. Palmer, Thomas S. Bocock, of Virginia; S. W. Bocock, James R. Keene, Hugh McCullough, of New York; Hon. Thomas Ewing, of Ohio; Hon. John P. Jones, of Nevada. Mr. C. Parsons is Vice-President and Acting President.

Richmond & Petersburg.—At the annual meeting in Richmond, Va., Nov. 26, Major Frederick R. Scott was reelected President, with the following directors: H. K. Ellison, B. W. Haxall, D. W. Lassiter, Richmond; R. R. Bridgers, Wilmington, N. C.; W. T. Walters, Baltimore.

St. Louis, Hannibal & Keokuk.—Mr. E. M. Greene has been appointed Superintendent and General Freight Agent. Mr. L. P. Jackson, late General Freight and Ticket Agent, is now Secretary and General Passenger Agent. Offices at Hannibal, Mo.

Southern Association of General Passenger & Ticket Agents.—At the first meeting, held in Atlanta, Ga., Nov. 25, the following officers were chosen: President, Henry M. Drane, Macon & Brunswick; Vice-President, John H. McMurdo, Richmond & Danville; Secretary, W. L. Danley, Nashville, Chattanooga & St. Louis.

Southern Railway & Steamship Association.—At the annual meeting in Atlanta, Nov. 26, the old officers were reelected, as follows: President, Joseph E. Brown, Atlanta, Ga.; General Commissioner, Virgil Powers, Macon, Ga.; Secretary, Charles A. Sindall, Atlanta, Ga.

Springfield, Troy & Northwestern.—At the annual meeting in New Carlisle, O., Nov. 18, the following directors were chosen: H. W. Allen, James H. Young, F. M. Sterrett, Troy, O.; Dr. B. Neff, L. L. Stafford, New Carlisle, O.; John Foss, George H. Fry, Springfield, O. The board elected H. W. Allen, President; Dr. B. Neff, Secretary.

Syracuse, Chenango & New York.—Mr. A. C. Belden has been appointed Manager, in place of James W. Brown.

Tidewater Pipe Line.—The officers of this new company are: President, B. D. Benson; Treasurer, R. E. Hopkins;

Auditor, D. B. Stewart; Managers, B. D. Benson, H. L. Taylor, R. E. Hopkins, A. A. Sumner, J. H. Dilks.

PERSONAL.

—Mr. H. Bartels, who will be by many remembered as a delegate from the Prussian government to the Centennial Exhibition for the purpose of studying American railroads, and who published on his return a study of the Pennsylvania Railroad and of some narrow-gauge roads, has recently been transferred from Berlin to Münster, where he is engaged on the Westphalian (state) Railroad as Inspector of Railroad Construction.

—The old London banking house of McCalmon Brothers, well known in this country from its connection with and large ownership in the Philadelphia & Reading road, has been dissolved, and the business is to be wound up. The youngest member of the firm is now 75 years old, and none of the firm has a son or other heir who is in a position to carry on the business.

—Mr. H. H. Sessions, late Master Car Builder of the Rome, Watertown & Ogdensburg road, has accepted the position of Manager of the Hitchcock Lamp Company, at Watertown, N. Y.

—Mr. John Jarnagin, one of the original projectors and first President of the Knoxville & Ohio Railroad, died at his residence in Clinton, Tenn., Nov. 19, aged 76 years. He was a prominent and influential citizen and had held several responsible local offices.

—Mr. Moses W. Dickerman, for 19 years past Master Car Builder of the Concord Railroad, died at his residence in Concord, N. H., Nov. 29.

—At a meeting of the board of directors of the Pittsburgh & Connellsburg Railroad Company, held Dec. 2, the following preamble and resolutions were unanimously adopted:

"Whereas, The board of directors of the Pittsburgh & Connellsburg Railroad Company has learned, with profound regret and sorrow, of the death of Benjamin H. Latrobe, of the city of Baltimore; and

"Whereas, It is eminently proper, in view of Mr. Latrobe's past connection with this company, and his eminent services in its behalf, that this board should indicate its sense of its loss, and place upon its records the high regard it bears for the memory of the deceased; therefore, be it

"Resolved, That in the death of Mr. Latrobe this company has sustained the loss of one of its staunchest friends. He was early engaged in the preliminary surveys for this road. At a subsequent period he became the President of the company and its Chief Engineer. In all these relations, his great abilities were brought into constant requisition in sustaining its interests. Nor did his interest in its affairs cease with a severance of his official connection with its service, at the completion of the road; he was always ready to lend to his successors the benefit of his great knowledge and accumulated experience. As an accomplished engineer, Mr. Latrobe had few equals. As a high-minded, genial and courteous gentleman, the communities in which he was known, and especially his colleagues here, will long hold him in cherished remembrance.

"Resolved, That in the death of Mr. Latrobe the friends of this road and the cities of Baltimore and Pittsburgh have lost one without whose unswerving faith in its ultimate success, and without whose high-toned integrity in all his relations thereto, this enterprise might never have been accomplished.

"Resolved, That as a mark of respect to the memory of the deceased, these resolutions be spread upon the minutes of the company and a copy thereof be forwarded to the family of the deceased."

—Mr. Michael Edwards, of Worcester, Mass., well known throughout the state as a railroad contractor, was killed at Spencer, Mass., Dec. 2, having fallen between two gravel cars, where he was caught and his chest crushed in. He had just finished the new Spencer Railroad.

—Mr. Henry W. Colecraft, Superintendent of the Missouri Pacific Car Department at Sedalia, was killed at Otterville, Mo., Dec. 4, while coupling cars.

TRAFFIC AND EARNINGS.

Railroad Earnings.

The following are state reports for the year ending Sept. 30, 1878:

	Earnings	Expenses	Net earn.	mile. exps.	P. c.
Cayuga Southern	\$46,601	\$74,380	*\$27,779	\$1,226	159.61
Fitchburg	1,937,934	1,417,205	520,699	11,202	73.13
Geneva, Ithaca & Sayre	204,096	281,134	*16,138	3,487	105.71
New York & New England	1,025,935	870,231	155,704	7,381	84.82
Northern, of New Jersey	234,247	186,943	47,304	9,010	70.88
Rhinebeck & Connecticut	55,951	54,788	1,163	1,599	97.84
Richmond & Petersburg	140,068	77,515	62,553	5,603	55.37
Rome & Clinton	18,193	22,321	*4,128	1,399	124.01
Southern Central	462,907	320,056	142,851	4,061	69.13
Syracuse, Chenango & New York	80,581	69,516	11,065	1,771	86.25
Utica & Black River	472,116	213,853	258,263	2,777	45.31
Utica, Clinton & Binghamton	78,100	59,522	18,578	2,519	75.03

* Deficit.

Other earnings are reported as follows:

Eleven months ending Nov. 30:					
Chicago, Mill. & St. Paul	\$7,735,072	\$7,444,973	I. \$290,099	3.0	
Ten months ending Oct. 31:	1878.	1877.	Ine. or Dec.	P. c.	
Dakota Southern	\$170,548				
Pitts., Cin. & St. Louis	2,616,035				
Net earnings	935,711				
St. Paul & Sioux City	497,031	\$430,912	I. \$66,119	15.3	
Sioux City & St. Paul	311,640	259,890	I. 51,759	19.9	
Month of October:					
Atlantic & Great Western	\$387,497	\$424,076	D. \$36,579	8.6	
Dakota Southern	21,029				
St. Paul & Sioux City	66,715	81,686	D. 14,971	18.3	
Sioux City & St. Paul	45,501	59,064	D. 13,500	23.0	
Month of November:					
Chicago, Mill					

Grain Movement.

Receipts of grain of all kinds at the eight leading Northwestern markets for the week ending Nov. 23 have been, in bushels, for the past six years:

1878.	1877.	1876.	1875.	1874.	1873.
4,210,803	3,624,676	2,855,645	3,276,429	2,222,840	2,159,083

The receipts of the week this year have been the smallest since July, but larger than ever before in any November week.

The shipments of the same eight markets for the same week have been:

1878.	1877.	1876.	1875.	1874.	1873.
2,782,672	2,717,945	2,679,743	2,376,015	1,042,633	2,776,144

The shipments this year are more than a third smaller than those of the previous week, and there have been but two weeks since navigation opened that they have been so small. But this is accounted for by the approaching close of navigation; in every year the shipments of the third week of November have been much less than those of the second week. They remain larger slightly than for the corresponding week of any previous year.

Of the above shipments from Northwestern markets the number of bushels and the percentage of the total shipped by rail each year have been:

1878.	1877.	1876.	1875.	1874.	1873.
689,159	461,560	2,272,753	876,901	278,362	385,890

The rail shipments this year are a little smaller than those of the preceding week, and smaller than in any other week except one since navigation opened, but they are much larger than at any time last year after the middle of October to this date.

For the same week ending Nov. 23, receipts at the seven Atlantic ports have been:

1878.	1877.	1876.	1875.	1874.	1873.
5,649,859	5,789,879	4,329,868	4,057,145	3,977,044	2,947,334

The receipts of the week this year, though a little smaller than last year, were the largest for three weeks, and larger than in any fall week previous to 1877.

Of the receipts at Atlantic ports this year, 63.6 per cent. were at New York, 12.9 at Philadelphia, 12.6 at Baltimore, 6.5 at Boston, 3.9 at New Orleans, 0.3 at Montreal and 0.2 per cent. at Portland. Montreal has ceased to obtain considerable shipments a week earlier than usual. Hereafter until navigation opens next spring it is not likely to receive much grain.

The total receipts at Atlantic ports this year down to Nov. 23 have been 229,330,076 bushels, against 148,661,543 for the corresponding period last year, showing an increase of 80,668,533 bushels, or 54 per cent.

For the week ending Dec. 2 receipts and shipments at Chicago and Milwaukee this year were:

	Receipts.	Shipments.
Chicago.....	2,047,139	1,329,654
Milwaukee.....	887,400	368,100

Receipts are about the same as for the preceding week; shipments nearly a quarter less.

For the same week receipts and shipments at Buffalo were:

	Receipts.	Shipments.
By rail.....	886,300	968,428
By water.....	1,028,500	57,146

Total..... 1,914,800 1,025,574

Compared with the previous week there is a large decrease in lake receipts and canal shipments, a large increase in rail receipts, and a trifling one in rail shipments.

For the same week ending Dec. 2 receipts at four Atlantic ports have been:

New York.....	3,272,210	Philadelphia.....	571,800
Baltimore.....	917,615	Boston.....	150,503

Compared with the previous week there is a decrease of about 25 per cent. in New York receipts, which, however, are still much larger than the average for November. Baltimore is the only place where receipts are larger than for the week previous.

The Buffalo *Commercial Advertiser* reports grain receipts at that point for November and the eleven months ending Nov. 30 as follows:

Month:	1878.	1877.	Increase. P. c.
By lake.....	151,581	7,606,434	Flour. 857,061
By rail.....	73,200	2,199,400	Grain. 82,700
Total.....	224,781	9,805,834	1,036,900
Season:			
By lake.....	808,865	76,920,435	60,523,853
By rail.....	674,500	26,938,800	945,100
Total.....	1,573,365	103,868,235	1,569,073

Rail receipts were 32.6 per cent. of the flour and 23.3 per cent. of the grain for the month; 42.9 per cent. of the flour, and 25.9 per cent. of the grain for the season. Shipments eastward for the season of grain received by lake were:

	1878.	1877.	Increase. P. c.
By canal, bushels.....	58,735,502	48,631,554	10,103,548 20.8
By rail.....	17,834,363	11,592,060	6,241,403 53.8

Total..... 76,560,865 60,224,014 16,344,951 27.1

Per cent. by rail..... 23.3 19.2 4.1 21.4

The canal opened April 15 in 1878, and May 8 in 1877, giving 23 days more of navigation this year than last.

The St. Paul (Minn.) *Trade Journal* reports the wheat shipments over the Northern Pacific Railroad up to Nov. 25 at 1,975,000 bushels, of which 1,004,400 bushels came to St. Paul and Minneapolis, and 880,600 bushels to Duluth.

Baltimore grain receipts for November were as follows:

	1878.	1877.	Inc. or Dec. P. c.
Flour, barrels.....	146,574	125,904	I. 26,870 16.6

Wheat, bushels..... 2,636,486 716,870 L. 1,919,616 267.8

Corn..... 752,401 1,100,468 D. 348,067 31.6

Other grain..... 86,036 49,516 I. 36,520 73.8

Total grain.... 3,474,923 1,866,854 I. 1,008,066 86.1

Total flour reduced to bushels..... 4,207,783 2,495,374 I. 1,712,419 68.6

For the eleven months ending Nov. 30 the receipts were:

	1878.	1877.	Increase. P. c.
Flour, barrels.....	1,295,624	1,107,636	187,988 17.0
Grain, bushels.....	38,236,004	27,780,917	10,445,087 37.6

Total, bushels..... 44,704,124 33,319,097 11,384,927 34.2

Exports in November were 48,388 barrels flour, 2,956,072 bushels wheat and 390,751 bushels corn.

Movement of Hog Products.

For the four weeks ending Nov. 28, the shipments of hog products from Chicago were 50,496 tons this year, against 31,165 tons last year, an increase of 19,331 tons, or 62 per cent.

Coal Movement.

Anthracite tonnages for the week ending Nov. 23 was: 1878, 530,569; 1877, 541,944; decrease, 11,375 tons, or 2.1 per cent.

Cumberland, Broad Top and Barclay tonnages for the week were 52,700 tons.

There is every prospect at present of the dissolution of the Anthracite Combination at the close of the year, and very sharp competition for business afterward.

The anthracite coal tonnage of the Belvidere Division, Pennsylvania Railroad, for the eleven months ending Nov. 30, was:

	1878.	1877.	Inc. or Dec. P. c.
Coal Port for shipment.....	14,052	54,390	D. 40,328 74.2
South Amboy for shipment.....	402,094	495,943	D. 93,849 18.0
Local distribution on N. J. lines.....	179,003	179,735	D. 642 0.4
Company's use on N. J. lines.....	76,925	65,784	I. 11,141 16.9

Total..... 672,164 705,852 D. 123,688 15.5

Of the total this year 529,859 tons were from the Lehigh, and 142,305 tons from the Wyoming Region.

Erie Canal.

The business of the Erie Canal at Buffalo from the opening to the end of November was as follows:

	1878.	1877.	Increase. P. c.
No. boats cleared.....	9,027	6,608	2,110 30.7
Tolls received.....	\$628,373	\$467,797	\$160,576 34.3
Avg. receipts per day.....	2,732	2,260	472 20.8

The canal opened April 15 in 1878, and May 8 in 1877, making 230 days more of navigation this year than last. Thus the average clearances per day were 39.2 this year and 33.4 last.

Cotton Movement.

Receipts of cotton at the seaboard for the week ending Nov. 29 and the three months of the crop year then ending are reported as follows by the *Commercial and Financial Chronicle*:

	1878.	1877.	Increase. P. c.
Week.....	148,025	172,216	-204,870 157,880 175,042
Since Sept. 1.....	1,730,234	1,499,517	1,843,065 1,580,985 1,457,006

Of the receipts of the week this year, 27.6 per cent. was at New Orleans, 11.9 at Galveston, 11.7 at Savannah, 11.8 at Charleston, 10.1 at Mobile and 9.7 at Norfolk.

For the season Sept. 1 to Nov. 22, 23.7 per cent. of the receipts have been at Savannah, 17.3 at Charleston, 16 at Galveston, 13.7 at Norfolk and 13.4 at New Orleans. Last year for the same period New Orleans received 25.9 per cent. of the whole.

The exports for the week and the three months have been as follows:

	1878.	1877.	Increase. P. c.
Week.....	118,589	89,004	8,100 9.1
Since Sept. 1.....	854,119	627,529	226,590 36.1

New Orleans now is leading in the exports, as usual, but for the season it is behind.

THE SCRAP HEAP.**Railroad Manufactures.**

old track, and it has no grades over 35 feet to the mile, against 69 feet on the old track.

Dahlonega & Atlanta.—It is proposed to build a railroad from Dahlonega, Ga., the centre of the gold mining region of North Georgia, southeast to the Atlanta & Charlotte Air Line at Gainesville. The distance is about 25 miles. A line westward to connect with the Marietta & North Georgia road is also proposed.

Dayton & Southeastern.—Receiver Gimplerling makes the following report for the period from Aug. 9, the date of his appointment, to Oct. 31:

Gross earnings.....	\$20,683.21
Working expenses (60.34 per cent.).....	12,490.11
Net earnings.....	\$8,203.10

From the net earnings the Receiver has paid \$2,367.47 for new work and permanent improvements of track.

Denver & Rio Grande.—The following notice is published by this company: "In accordance with the terms of its first-mortgage coupon certificates, the Denver & Rio Grande Railway Company hereby gives notice that it elects to anticipate payment in cash of all said certificates, at the company's agency in New York City, on and after Jan. 1, 1879."

The lease of the road to the Atchison, Topeka & Santa Fe was ratified by the stockholders at a special meeting held in Colorado Springs, Nov. 29. The lessee took possession Dec. 1.

It is stated that stock of this company and the Pueblo & Arkansas Valley has been deposited with the trustee to an amount sufficient to make binding the recent agreement for equalization of the stock of the two companies.

Detroit & Milwaukee.—The deed transferring this road to the new company has been formally recorded. Receiver Trowbridge's final account has been approved by the Circuit Court and orders entered finally discharging him and canceling his bond.

Eastern, of Long Island.—The organization of this company has been completed, and arrangements are being made to begin work on the first section. It is to be a narrow-gauge road, to run from East New York eastward along the south side of Long Island to Babylon, about 30 miles. It trains will use the New York & Manhattan Beach road from East New York to Greenpoint. It will run through a section of country already well provided with railroads which have been unable to secure traffic enough to keep them out of bankruptcy.

Flint & Pere Marquette.—This company has laid track on its Saginaw & Clare County Branch from Farwell, Mich., northward three miles, and is grading it for some four miles further. It has contracts with owners of pine lands on the branch to carry not less than 3,000,000 feet of logs yearly to Flint or East Saginaw.

Up to Nov. 21 of this year this road had received from the Goodrich Line steamers at Ludington 4,400 car-loads of freight for transportation eastward, including 3,172 car-loads of grain and 74,620 barrels of flour. It has also delivered a considerable quantity of west-bound freight to the boats. The Goodrich Transportation Company has arranged to run four steamers between Ludington and Milwaukee through the winter.

Illinois Central.—A line is being run by this company's engineers from Kenny, Ill., on the Springfield Division, south by west to East St. Louis.

James River & Kanawha Canal.—Conference committees have agreed upon conditions for the transfer of this company's property to a new organization known as the Richmond & Allegheny Railroad Company. This company is to assume all the debts and obligations of the Canal Company; to complete and equip a railroad on the line of the canal from Richmond by way of Lynchburg to Buchanan, with a branch to Lexington, the railroad to be ready for use within 20 months from the beginning of work, and navigation of the canal not to be interrupted while the work is in progress; finally to deposit \$500,000 in registered United States bonds with the Virginia Board of Public Works as security for its faithful execution of the contract. The Canal Company is to transfer all its property, and to secure the passage of an act legalizing the contract by the Virginia Legislature.

The contract will be submitted to the stockholders of both companies for their approval.

Kansas Pacific.—The Junction City & Fort Kearney road, controlled and worked by this company, has been completed and opened for business to Clyde, Kan., six miles westward from the late terminus at Clifton, and 55 miles from Junction City.

The Solomon Railroad, also worked and practically owned by this company, has been completed and opened from the main line at Solomon City, Kan., northwest up the Solomon River to Minneapolis, a distance of 23 miles. It opens up a district which is being filled up by settlers very fast.

Libertyville.—This company has been organized to build a branch road about two miles long from Libertyville, in Lake County, Ill., to Libertyville Station on the Chicago, Milwaukee & St. Paul road.

Manchester & Keene.—The tracklayers on this road reached Keene, N. H., Nov. 29. The track is now being ballasted and finished up and will soon be ready for regular trains. The road is 26 miles long, from Greenfield, N. H., the terminus of the Peterboro road, westward to Keene, where it connects with the Ashuelot and the Cheshire roads. Nine miles, from Greenfield to Hancock, were finished last year and much of the balance graded. The road was originally projected as an independent line to open a new route from Manchester to the Connecticut River road and New York, but it is now controlled by the Nashua & Lowell Company, which has advanced a considerable sum to aid in its construction, and will probably work it as an extension of its leased Peterboro and Wilton roads, and will naturally be more disposed to cultivate traffic eastward, although it may be used to some extent as originally intended.

Minnesota Midland.—Mr. Henry Crawford, of Chicago, has filed a bill in equity in the United States Circuit Court at Milwaukee against certain directors of this company, the Chicago, Milwaukee & St. Paul Company and Alexander Mitchell. The bill charges that the defendants conspired together to deprive him of his interest in the Minnesota Midland road and to transfer the same to the Chicago, Milwaukee & St. Paul Company, or parties interested therein. Mr. Crawford claims to have owned four-ninths of the property and asks for an injunction or other suitable relief.

Missouri, Kansas & Texas.—This company is now selling tourist tickets from Hannibal and St. Louis to Texas points at the following rates: Hannibal to Austin and return, \$50; to Galveston and return, \$51.90; to San Antonio and return, \$61.10. From St. Louis \$1 is added in each case to the Hannibal rate. These tickets are first-class, and the return coupons are good until May 1. The tickets are made in contract form, the purchaser being required to sign

the contract on the face of the ticket, and, before returning, to endorse it in the presence of the agent at the Texas terminal point. Austin tickets are sold either over the Houston & Texas Central, or by the International & Great Northern from Hearne.

Mobile & Spring Hill.—This short suburban line has been completed and opened for business from Mobile, Ala., westward through Summerville to Spring Hill, a distance of eight miles.

Montclair & Greenwood Lake.—The Purchasing Committee has decided to allow bondholders who did not sign the agreement of reorganization to come in and join in the purchase until Dec. 10.

Montour Branch.—This road is now well advanced, and tracklaying will soon be begun. It will extend from the Pittsburgh & Lake Erie at the mouth of Montour Run up that stream to Montour, about 12 miles, and will reach several large collieries.

Nashua & Lowell.—It is again stated that this road will be operated independently of the Boston & Lowell, the connection since Oct 1 having been only under a temporary agreement. It is said that there are serious differences in the board, but that a majority are opposed to continuing the present arrangement.

New York-Savannah Through Sleeping Car.—There has grown up since the war quite a large passenger business between New York and the South, especially Florida, consisting of invalids and pleasure-seekers who go in the fall to enjoy a mild winter climate and return in the spring, and a number of different routes from the East and Northwest have run connecting trains and sleeping cars through for greater or less distances to accommodate it. By the Richmond & Danville and Atlanta & Charlotte Air Line a sleeping car has been for some time run through between New York and Atlanta, and now a through line has been established between New York and Savannah. The car leaves New York at 8:15 a.m. and reaches Savannah at 6:08 a.m. of the second day, where passengers to Florida can proceed either by the "inside line" of steamboats (river boats) to Fernandina or Jacksonville, or by rail to Jacksonville. By all, or nearly all, the rail lines the winter round-trip tickets, good until May to return, are sold to Jacksonville at \$50. The through Savannah sleeper, after leaving Richmond, goes by the Richmond & Danville, Charlotte, Columbia & Augusta, the Port Royal and the Savannah & Charleston railroads.

Norwich & Worcester.—At the recent annual meeting of the New York & New England Company, reference was made to the lease of this road. President Hart stated that the present arrangement or lease was terminable by either party. The matter is now in charge of committees of the two companies, however, and it is probable that a permanent lease will be made, but at a lower rental than is now paid. The present rental is interest on the bonds and 10 per cent. on the stock, and last year there was a small surplus left after paying it.

Old Colony.—The Norfolk County (Mass.) Grand Jury has found an indictment for manslaughter against Conductor or Hartwell of the freight train which caused the accident on this road at Wollaston. He will be tried at the next term of Court.

Omaha & Northwestern.—The purchasers of this road at the recent foreclosure sale have organized the Omaha & Northern Nebraska Railroad Company. The new management is substantially the same as the old.

Philadelphia, Wilmington & Baltimore.—The usual fall inspection of this road was made last month by Chief Engineer S. T. Fuller and his assistants, who, with the road-supervisors and foremen, passed over the line in an inspection car, noting carefully the condition of each section. The supervisors and foremen are divided into three committees, blanks being furnished for them to mark their estimate of the condition of the division allotted to them. The first committee is on line, surface and joints; the second, ties, road-bed, ditches and road crossings, and the third, switches, side-tracks, station-grounds, grassing, clearing fences, etc.—numbers from one to ten being used to designate the comparative merits of same, ten being the highest mark, five an average. Premiums are awarded for the greatest improvement during the year on any section; the first being \$100, the second \$50, third, \$35, and a committee of seven—consisting of the three division supervisors, one district supervisor from each division, and the Chief Engineer—make the awards. There is also every year a spring inspection, which is devoted chiefly to the condition of bridges, culverts and buildings. These inspections and the premiums offered have been found, on this road, as on the Pennsylvania, to be of great value in improving the condition of the road. The supervisors and foremen are not only incited to more careful and thorough work, but they learn much from the interchange of views and mutual criticism.

A special inspection of part of the road was also made recently, when Charles Francis Adams, Jr., Railroad Commissioner of Massachusetts, with J. M. Smith, Assistant Superintendent, S. T. Fuller, Chief Engineer in charge of maintenance of way department, and W. H. Lungren, Master Carpenter, left Philadelphia in a special train and went as far as Perryville. Mr. Adams, in company with Chief Engineer Fuller, walked over several miles of track at different points of the road, examining it in all its details, the stations, bridges, Wharton switches and the coaling bridges or stations, which are peculiar to this road.

Pittsburgh & Lake Erie.—In addition to the work on the main-line, about 300 men are now employed on the grading of the branch from Mahoningtown, Pa., to New Castle, which will be about $2\frac{1}{2}$ miles long. It will be completed in a very short time. It is expected that the main line will be ready for business about Dec. 15.

Pittsburgh, Cincinnati & St. Louis.—This company's statement is as follows for the ten months ending Oct. 31:

Gross earnings.....	\$2,616,035
Expenses (64.23 per cent.).....	1,680,323

Net earnings.....	\$935,712
Interest on bonds, ten months.....	558,158

Surplus.....	\$377,554
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Gross earnings include interest received on equipment hired out; expenses include interest on car-trust cars, and rental of the Monongahela Extension in Pittsburgh.

Pittsburgh, Titusville & Buffalo.—Argument was heard in the Pennsylvania Supreme Court last week on the appeal from the decision of the lower courts awarding certain money held by the former Receiver of this road to the Pennsylvania Transportation Company as holder of a judgment against the Oil Creek & Allegheny River Company. The claim, under which the judgment was obtained, has been in litigation several years. The appellants in the present case are bondholders of the Oil Creek & Allegheny River road, who claim a prior lien upon the money.

Potomac & Ohio.—A contract has been let to build a

section of 21 miles of this road from Charleston, W. Va., eastward along Elk River. This work is to be done in six months. The eastern terminus is to be at Quantico, on the Potomac.

Republican Valley.—This road is now completed from Hastings, Neb., south by west to Red Cloud, a distance of 41 miles. Work is in progress on the line from Red Cloud westward along the Republican River to Bloomington, 30 miles. The road is leased to and practically owned by the Burlington & Missouri River in Nebraska.

Rutland.—At a meeting of holders of the equipment bonds of this company in Boston last week a proposition from the company was presented for the exchange of the equipment bonds for new 5 per cent. bonds. It was stated that the company owed about \$1,700,000 in all, including \$900,000 dividends due to preferred stockholders. The floating debt is \$363,000, secured by pledge of first-mortgage bonds and Addison stock. The equipment bonds amount to \$1,000,000, one-half bearing 7 and the rest 8 per cent. interest.

The proposition was apparently not well received, and some of the bondholders spoke sharply against it. Ex-Governor Page defended the management in a long speech. Finally, after a long discussion, it was resolved to appoint a committee of five to confer with the directors and to recommend to the bondholders such action as they may deem best after investigating the condition of the company. The bondholders then adjourned to meet again in 30 days, unless sooner called together by the committee.

St. Louis, Alton & Terre Haute.—In the suit brought by this company to recover rental due from the lessees of the main line and its guarantors, the United States Circuit Court has made an interlocutory order directing the Indianapolis & St. Louis Company to pay into Court monthly 30 per cent. of the gross earnings of the leased line, and enjoining it from paying any interest due on bonds held by the companies who are guarantors for the Indianapolis & St. Louis Company, or to pay any moneys advanced by them unless said 30 per cent. shall exceed the minimum rental agreed to be paid to the St. Louis Alton & Terre Haute Company. This order is to hold until the final hearing of the case.

After directing the above order to be made, the Court added: "A further important consideration on the question of jurisdiction remains, viz.: The right of the complainant to go into a court of equity to enforce the obligation of the Pennsylvania Railroad Company to pay any sum due from the Pittsburgh, Fort Wayne & Chicago on its contract of guarantee. If the jurisdiction properly attaches for this purpose, as we think it does, all the parties and the subject of controversy being before the Court, it will take jurisdiction for all purposes."

St. Paul & Pacific.—The earnings of this road for the year ending June 30 are published as follows:

Receipts:	1877-78.	1876-77.	Increase, P. c.
First Division.....	\$595,827	\$475,580	\$120,247 25.3
Branch Line.....	351,306	300,398	50,908 17.0
Red River & Manitoba.....	141,113	141,113

Total.....	\$1,088,336	\$775,978	\$312,358 40.3
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Expenses:	359,218	336,244	22,974 6.8
First Division.....	167,832	147,500	20,332 13.8
Branch Line.....	95,401	85,401

Total.....	\$622,451	\$483,744	\$138,707 28.7
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The earnings per mile, etc., last year were as follows:

Gross earn. per mile.	Net earn. per mile.	Per cent. of exps.	
First Division.....	\$2,878	\$1,143	60.29
Branch Line.....	4,024	2,415	47.76
Red River & Manitoba.....	4,212	1,365	67.00

The Manitoba connection was to be completed this week, when the track of the Canadian Pacific's Winnipeg Branch was to reach the border at Emerson. Next week regular trains will probably be run from St. Paul to Winnipeg and Fort Garry.

Tidewater Pipe Line.—This company has been organized to build and work a pipe line for the transportation of oil from Bradford, Pa., to Williamsport, where it can be delivered to the Philadelphia & Reading road. The distance is about 103 miles, and work is to be begun at once.

Toledo, Peoria & Warsaw.—The Purchasing Committee gives notice that the Farmers' Loan & Trust Company in New York will pay, on and after Dec. 10, the sum of \$43,84 on each \$1,000 Eastern Division bond, \$43,36 on each \$1,000 Western Division bond, and \$26,28 on each \$1,000 Burlington Division bond, such payments being equivalent to the two quarterly interest payments, due July 1 and Oct. 1, as provided by the plan of reorganization.

Union Pacific.—The first of the cases pending between this company and the United States was argued this week before the Supreme Court at Washington. It is the appeal from the Court of Claims on the company's suit to recover one-half the amounts charged on mails and other government business over the road. Against this the Court of Claims allowed as an offset the 5 per cent. of the net earnings of the road claimed by the United States, and the company appealed. Incidentally the suit involves the question as to what are the net earnings of the road, the company claiming that interest paid should be deducted, as well as the expense of working and maintaining.

Utah & Northern.—The grading of this road is now completed to the crossing of Snake River at Eagle Rock, and the track is laid to Blackfoot, Idaho, 206 miles northward from Ogden, Utah, the southern terminus, and 71 miles beyond Fort Neuf Cañon, the last point noted. Blackfoot will be the winter terminus of the road, but all arrangements will be made to build it northward into Montana next season.

Valley, of Virginia.—At the adjourned stockholders' meeting in Staunton, Va., Dec. 3, the answer of the city of Baltimore and the Baltimore & Ohio Company to the proposal of the local stockholders to divide the road was presented. The answer refused to agree to the proposal and defended the action of the Baltimore interest at considerable length. It charged the failure to complete the road largely on the local stockholders, who had failed to complete their subscriptions.

The answer called out a long and heated discussion, in which many bitter speeches were made on both sides. The local stockholders charged that the purpose of the Baltimore & Ohio was to put the road into bankruptcy and acquire complete possession, and on the other side it was charged that if the local stockholders had kept faith and paid up as they agreed to, there would have been no trouble.

Finally the answer was ordered to be recorded in the minutes and a resolution was then adopted authorizing the local stockholders to prepare a protest and file it with the Secretary for record within 30 days. A resolution was unanimously adopted providing for the appointment of

a committee of five, four of whom to concur, to make and close a contract for the lease of the road for a term of not less than 20 nor more than 30 years. The contract to bind the lessee to pay \$1,000 per mile per annum for the completed line from Harrisonburg to Staunton, and at the same rate as the road may be completed in sections of five miles south of Staunton, the road to be kept in repair and returned in good order at the expiration of the lease. Messrs. Anderson, Keyser, Duval, Dorman and Echols were appointed as the committee, and the meeting adjourned.

Victoria.—The extension of this road from Kinnmount, Ont., to Haliburton, 22 miles, has been completed. It was formally opened last week, when there was an excursion and a dinner at Haliburton, with speeches and other demonstrations.

West End Narrow Gauge.—This road has recently been extended to Florissant, Mo., 10 miles beyond the late terminus at Normandy and 18 miles from the station at Grand avenue in St. Louis. The equipment has recently been increased, and the road is now supplied with neat and comfortable station houses. The road is reported in a prosperous condition, doing a good business. It is entirely a suburban line, reaching some of the best country around St. Louis.

ANNUAL REPORTS.

New York & Oswego Midland.

This road includes the main line, from Middletown, N. Y., to Oswego, 249 miles; the Ellenville Branch 4.5 miles; the Delhi Branch, 17 miles, and the New Berlin Branch, 22 miles, making 292.5 miles in all. The following figures are from the report of the Receivers to the State Engineer of New York for the year ending Sept. 30.

The stock and debt were as follows for two years past:

	1878	1877	
Stock	\$6,800,522	\$6,800,522	
Bonded debt	16,073,500	16,073,500	
Floating debt	6,513,018	6,513,533	
Total	\$29,387,040	\$29,387,575	
Cost of road, etc.	26,333,704	26,284,395	

The passenger and freight movement was as follows:

	1877-78	1876-77	In. or Dec.	P. c.
Passengers carried	261,497	249,138	I.	12,359 5.0
Tons freight carried	212,541	222,507	D.	9,006 4.5
Total	\$560,020.40	\$568,203.77	D.	38,183.37 1.4
Expenses	508,650.64	530,164.35	D.	21,513.71 4.1
Net earnings	\$51,399.76	\$38,039.42	L.	13,330.34 35.1
Gross earn'g per mile	1,014.60	1,042.55	D.	27.98 1.4
Net " "	175.62	130.05	L.	45.57 35.1
Per cent. of exps.	90.83	93.31	D.	2.48 2.7

The net earnings last year were 0.32 per cent. on the funded debt, or 0.23 per cent. on the total debt. There were two persons killed and eight injured during the year.

Delaware & Hudson Canal Company.

The following figures are from the statements filed by this company for its leased lines with the State Engineer of New York for the year ending Sept. 30, 1878.

ALBANY & SUSQUEHANNA.

This road includes the line from Albany to Binghamton, 142.20 miles, with 34.75 miles of branches, making 176.95 miles in all. The cost of road and equipment, not the entire cost, but the amount expended by the lessee, is \$3,012,174, an increase of \$17,035 during the year. The passengers and freight carried were:

	1877-78	1876-77	In. or Dec.	P. c.
Passengers, etc.	\$290,427.24	\$283,874.41	L.	\$6,532.83 2.3
Freight	811,379.73	871,801.47	D.	60,511.74 6.9
Other sources	4,196.37	5,360.70	D.	1,104.41 21.7
Total	\$1,106,003.34	\$1,161,126.65	D.	\$55,123.31 4.7
Expenses	579,601.91	713,579.37	D.	133,887.46 18.8
Net earnings	\$526,311.43	\$447,547.28	L.	\$78,764.15 17.6
Rental paid	704,124.79	709,104.41	D.	5,039.62 0.7

	1877-78	1876-77	In. or Dec.	P. c.
Gross earn. per mile	6,250.37	6,561.89	D.	311.52 4.7
Net earnings per mile	2,074.35	2,520.23	L.	445.12 17.6
Per cent. of expenses	52.41	61.45	D.	9.04 14.7

One person is reported killed and none injured during the year.

NEW YORK & CANADA.

This road has a main line from White Hall to Rouse's Point, 112.42 miles, with 36.54 miles of branches, 148.96 miles in all. It is substantially owned by the lessee. Its capital account is reported as follows:

	Sept. 30, 1878.	Sept. 30, 1877.	
Stock	\$4,000,000.00	\$4,000,000.00	
Bonds	4,000,000.00	4,000,000.00	
Floating debt	26,938.68	* 26,594.43	
Total	\$8,026,038.68	\$8,267,594.43	
Cost of road, etc.	8,278,118.77	8,263,080.79	

The traffic, as far as reported, was:

	1877-78.	1876-77.	In. or Dec.	P. c.
Passengers, etc.	\$187,853.24	\$180,995.04	D.	\$2,142.40 1.1
Freight	213,225.73	199,246.48	L.	13,979.25 7.0
Other sources	886.57	368.37	L.	518.20 140.8
Total	\$401,065.54	\$380,610.49	L.	\$12,355.05 3.2
Expenses	281,375.90	272,727.34	D.	8,648.56 3.2
Net earnings	\$120,589.64	\$116,883.15	L.	\$3,706.49 3.2
Interest paid	237,362.75	247,360.20	D.	10,006.45 4.0

	Loss to lessee	\$116,773.11	\$130,486.05	D.	\$13,712.04	10.5
Gross earn. per mile	2,668.48	2,615.54	L.	82.04	3.2	
Net earn. per mile	809.54	784.66	L.	24.88	3.2	
Per cent. of exps.	70.00	70.00				

Expenses are fixed at 70 per cent. by agreement with the lessee.

RENSSELAER & SARATOGA.

This property includes 182.62 miles of road, the longest single line being from Troy to White Hall, 72.55 miles; from Schenectady to Saratoga, 20 miles, and from Salem to Rutland, Vt., 61.98 miles. The lessee's construction ac-

count is \$2,455,471, an increase of \$26,920 during the year. The traffic as reported was as follows:

	1878-78.	1876-77.	Increase.	P. c.
Passengers carried	1,132,503	1,120,244	12,319	1.1
Tons freight carried	589,413	554,236	35,177	6.3

The earnings for the year were as follows:

	1877-78.	1876-77.	In. or Dec.	P. c.
Total	\$1,429,933.87	\$1,451,762.04	D.	\$21,828.17 1.5
Expenses	708,355.16	942,120.57	D.	143,773.41 15.3

Net earnings

	1878-78.	1876-77.	In. or Dec.	P. c.
Total	\$631,577.71	\$509,632.47	L.	\$121,945.24 23.0
Rental paid	769,167.94	763,272.50	L.	5,805.44 0.8

Net earnings

	1878-78.	1876-77.	In. or Dec.	P. c.
Total	\$1,226,900.125	\$1,209,125		\$126,320.00 42.0
Funded debt	4,809,000	4,809,000		459.75 21.9

Floating debt

	1878-78.	1876-77.	In. or Dec.	P. c.
Total	\$7,990,125	\$7,990,125		\$2,873,125 42.8
Cost of road and equipment	8,504,629	8,504,629		2,843,588

The earnings and expenses were as follows :

	1877-78.	1876-77.	In. or Dec.	P. c.
Passengers	\$427,417.28	\$31,097.19		\$126,320.00 42.0
Miscellaneous	2,571.07	2,111.32		459.75 21.9

Total

	1877-78.	1876-77.	In. or Dec.	P. c.
Total	\$429,988.35	\$303,208.51		\$126,770.84 41.8
Expenses	250,727.50	189,552.79		61,174.77 32.3

Net earn.

	1877-78.	1876-77.	In. or Dec.	P. c.

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